Sept. 8, 1931. P. LIEBERKNECHT 1,822,597

LEVER SHAFT DRIVING DEVICE OF FLAT FULL FASHIONED MACHINES

Filed Sept. 19, 1930

Fig. 1.

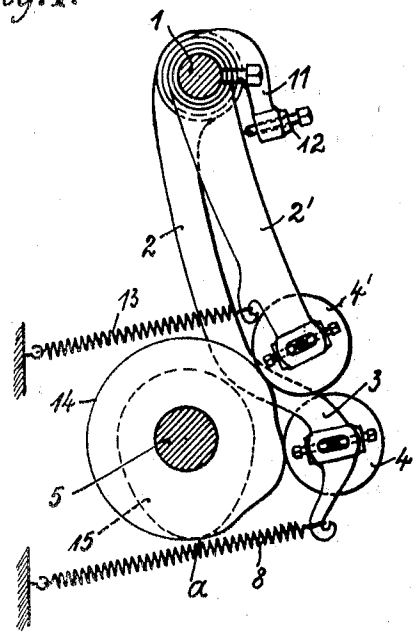


Fig. 2.

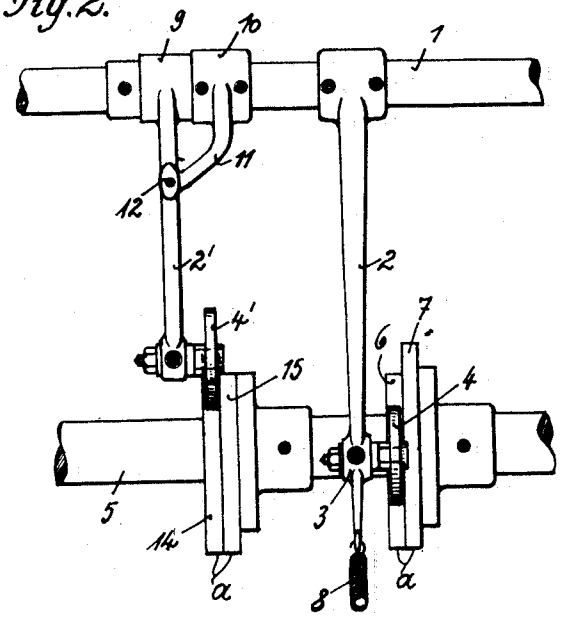


Fig. 3.

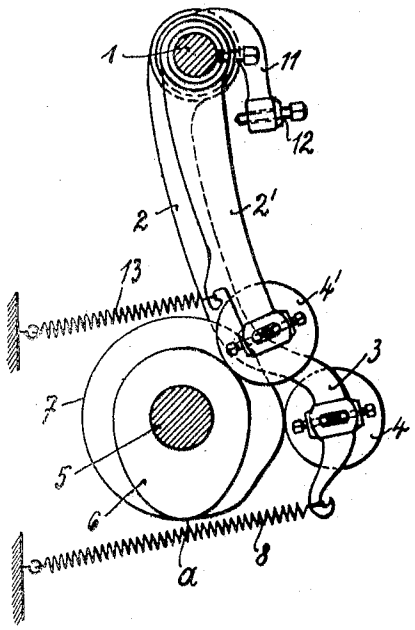
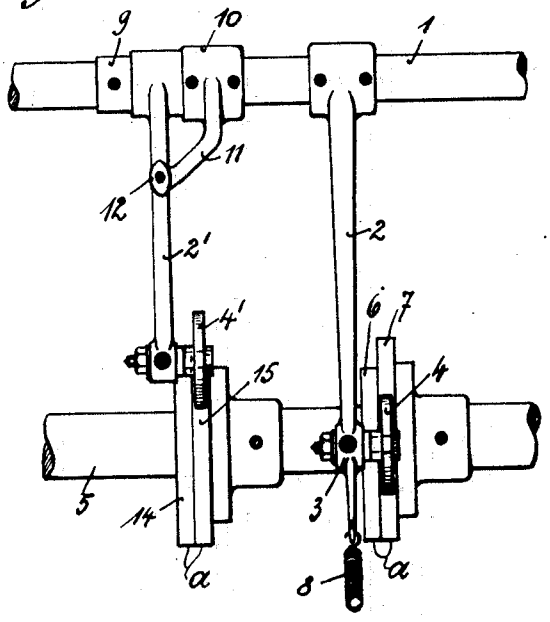


Fig. 4.



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1,822,597

UNITED STATES PATENT OFFICE

PAUL LIEBERKNECHT, OF EINSIEDEL, CHEMNITZ, GERMANY, ASSIGNOR OF ONE-HALF TO MASCHINENFABRIK-EINSIEDEL GESELLSCHAFT MIT BESCHRANKTER HAFTUNG, OF EINSIEDEL, CHEMNITZ, GERMANY

LEVER SHAFT DRIVING DEVICE OF FLAT-FULL FASHIONED MACHINES

Application filed September 19, 1930, Serial No. 483,124, and in Germany July 9, 1930.

This invention relates to a driving device for the members of a flat-full fashioned machine, for example the facing bar or the needle bar which are actuated from an eccentric by the aid of lever systems. In the known driving devices for such members a single arm lever is secured to a lever shaft and has at its end a roller which lies in the path of the working and narrowing cam secured to the cam shaft. When this cam for any reason has to be adjusted for the timing of the working, the disadvantage arises that the timing of the narrowing is of necessity also altered even when such alteration is not desired. Therefore it is not possible with this known device to alter the one timing without altering the other timing because both are dependent on each other.

It is the object of this invention to remove this disadvantage. According to the invention the roller of the lever mounted on the lever shaft runs on the working cam only during the time of working, whilst a roller provided on a second lever takes over the actuation of the said members during narrowing. This second lever is provided loosely on the same lever shaft but moves this shaft with it by means of an abutment secured to the said shaft, as soon as the cam belonging to this lever imparts a lift to the said lever. This has the result that the roller of the loose lever can be adjusted as desired without affecting the timing of the working and the roller of the secured lever can be adjusted without affecting the timing of the narrowing.

Therefore when the cam shaft is displaced to the right for a distance equal to the width of a cam for the purpose of narrowing, at which moment both cams effect the same lift, the cam which carries out the correct timing of the narrowing is slid under the lever loosely mounted on the lever shaft, whilst the cam which effects the timing of the working is drawn from beneath the roller of the secured lever and a cam is pushed into that place which has the same lift as the working cam only at the point of change and is retained so low at all other points that the roller of the secured lever remains unengaged and does not touch the working cam. The cam which during the working time is situated beneath the lever mounted loosely on the lever shaft is also formed correspondingly low at all places up to the point of change.

The accompanying drawings illustrate an embodiment by way of example. In the drawings—

Figures 1 and 2 show in front and side view respectively, the driving device with the narrowing cam in action.

Figures 3 and 4 show the same device in front and side view respectively, but with the working cam in action.

Referring to the drawings, a single arm lever 2 is secured to a shaft 1 (lever shaft) which is turnable but not slidable. The lever 2 carries an adjustable roller 4 which is in the area of movement of each of two cams 6 and 7 which are mounted on a cam shaft 5. The cam 6 hitherto served for narrowing and the cam 7 is a working cam.

The roller 4 is drawn constantly towards the working surfaces of the cams by a spring 8. The sliding of these cams 6 and 7 at the moment when their points *a* of similar radius touch the roller 4 is also known.

A single arm lever 2′ is mounted loosely on the lever shaft 1 between two collars 9 and 10 which are secured to the shaft 1. The end of the lever 2′ carries an adjustable roller 4′ which rolls alternately on a pair of cams 14, 15 of which the cam 14 forms the narrowing cam. The right hand collar 10 has an arm 11 which serves as an abutment and is provided with a screw 12 for regulating the distance of the abutment. The screw 12 is situated in the path of the second lever 2′. A spring 13 draws the lever 2′ and therefore the roller 4′ constantly towards the working surface of that of the two cams 14, 15 which lies beneath it.

When the cam shaft 5 is axially displaced towards the right for a distance equal to the width of one cam, see Figures 1 and 2, the cam 14 arrives beneath the lever 2′ which is loosely mounted on the lever shaft 1 and the cam 14 carries out the desired narrowing timing, whilst the cam 7 which until then had carried out the working timing arrives

in a position where it is not beneath the roller 4 and the cam 6 has taken its place, the cam 6 having the same radius as the working cam 7 at the point along its working surface where the change takes place. The radius of this cam 6 is maintained so small at all other points that the roller 4 of the secured lever 2 hangs free in the air and therefore does not touch the cam 6 itself when the loose lever 2′ turns the shaft 1 through the medium of the abutment 11, 12.

When the lever shaft 1 is turned by the working cam 7, the roller 4′ of the loose lever 2′ lies on the cam 15 and do not act on the lever shaft 1 in any way, see Figures 3 and 4, because the radius of the cam 16 is maintained less than the corresponding cam 7 at all points except the point where the change takes place.

I claim—

A driving device for the needle bar, facing bar and the like parts actuated by cams and shafts in the cotton machine, wherein the working cam and the narrowing cam act on two separate levers of which one is secured to the lever shaft and the other is mounted loosely on same shaft and transmits motion by means of an abutment secured to the said shaft, whereby the possibility of a separate adjustment is achieved.

In testimony whereof, I have signed my name to this specification at Dresden, Germany, this 27th day of August, 1930.

PAUL LIEBERKNECHT.