

No. 699,067.

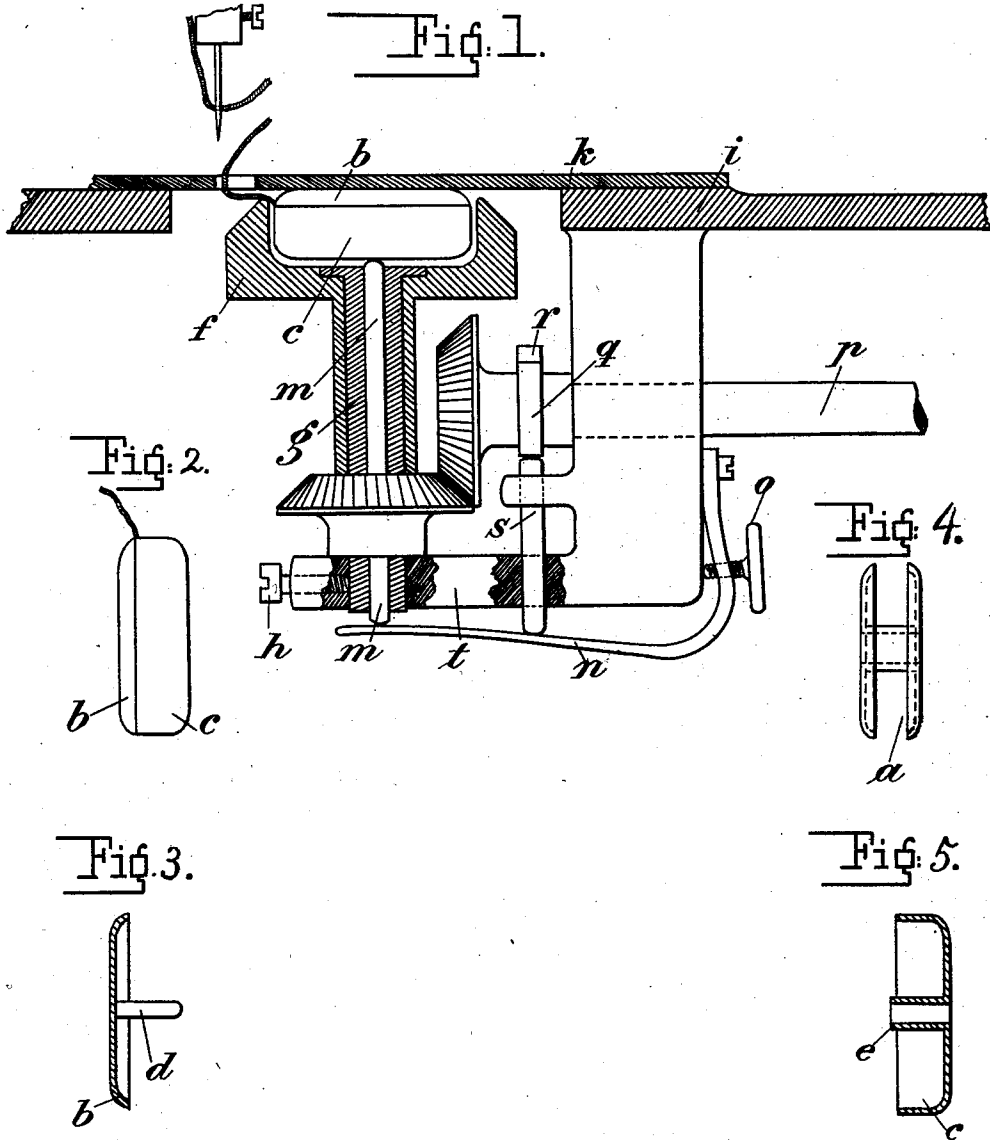
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G. G. BEITZEL.

TENSION MECHANISM FOR THE LOWER THREADS OF SEWING MACHINES.

(Application filed Aug. 15, 1901.)

(No Model.)



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UNITED STATES PATENT OFFICE.

GEORG GOTTWALD BEITZEL, OF COPENHAGEN, DENMARK.

TENSION MECHANISM FOR THE LOWER THREADS OF SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 699,067, dated April 29, 1902.

Application filed August 15, 1901. Serial No. 72,121. (No model.)

To all whom it may concern:

Be it known that I, GEORG GOTTWALD BEITZEL, manufacturer, of 23 Nørrebrogade, Copenhagen, in the Kingdom of Denmark, have invented certain new and useful Improvements in Tightening Mechanism for the Lower Threads of Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The present invention refers to a tightening mechanism for the lower thread of sewing-machines.

The invention is on the accompanying drawings shown in two forms of construction.

Figure 1 shows the one constructional form in perpendicular section. Fig. 2 is the spool-house connected up. Figs. 3 to 5 are details.

a is the spool, upon which the lower thread is wound. The spool is a flat one and placed inside a spool-house consisting of two flat cups *b* and *c*. The cup *b* has a central pin *d* fitting into a boring in a pin *e* on the other cup *c*, so that the cups when put on top of one another are prevented from moving sideways. The rims of the cups are plane, so that the thread, which from the spool *a*, mounted upon the pin *e*, is passed out between the rims, is held fast when the cups are pressed together.

The spool-house is placed in the catcher *f* of the machine, so that one of the cups bears against a fixed point, while the other cup is subjected to an elastic pressure that forces the rims of the cups together at the same time as the aforesaid cup is pressed against the above-mentioned fixed point. However, when the loop of the upper thread is to be slipped around the spool-house by the catcher the pressure of the spool-house against the fixed point must cease in order that the thread can pass over the spool-house. Arrangements whereby this is obtained are described in the following:

In the constructional form shown in Fig. 1,

the catcher *f* rotates on a vertical axis, it being mounted turnably upon a hollow perpendicular spindle *g*, which by means of a set-screw *h* is fixed upon a rigid arm *t*. The catcher is made to rotate, by means of bevel-wheels, from a shaft *p*. On the table *i* of the machine there is placed a plate *k*. In the hollow spindle *g* is inserted a rod *m*, which pressed by a spring *n* forces the spool-house *b c* up against the said plate *k*. When the spring *n* presses upon the lowermost end of the rod *m*, the rims of the cups *b* and *c* are pressed against each other, and the tightening of the lower thread is thereby obtained. By means of an adjusting-screw *o* the spring *n* can be made to press more or less against the rod *m*, and the pressure between the rims of the cups can thereby be regulated, so that the tightening of the lower thread may be greater or smaller, as might be desirable. On the shaft *p* is mounted a disk *q*, having a projection *r*, and between the disk *q* and the spring *n* is arranged a pin *s*, capable of sliding in a hole in the arm *t*. When the projection *r* strikes against the end of the rod *s*, this one forces down the spring *n*, whereby the rod *m* and the cups *b c* are again released. By pushing aside the plate *k* the spool-house may be removed.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I declare that what I claim is—

1. An apparatus for tightening the lower thread of sewing-machines, comprising a rigid arm provided with a fastening, a hollow spindle detachably secured upon said arm by means of said fastening, a catcher revolvably mounted upon said spindle, a rod slidably mounted within said hollow spindle, a revoluble spool-house mounted within said catcher and centrally engaged by said rod, and means for intermittingly pressing said rod against said spool-house.

2. An apparatus for tightening the lower thread of sewing-machines, comprising a rigid arm provided with a fastening, a catcher revolvably mounted upon said spindle, a rod slidably mounted within said hollow spindle, a revoluble spool-house mounted within said

catcher and centrally engaged by said rod, a
spring for pressing said rod into engagement
with said spool-house, means controllable at
will for adjusting the tension of said spring,
5 and cam mechanism for intermittingly ac-
tuating said spring.

In testimony that I claim the foregoing as

my invention I have signed my name in pres-
ence of two subscribing witnesses.

GEORG GOTTWALD BEITZEL.

Witnesses:

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