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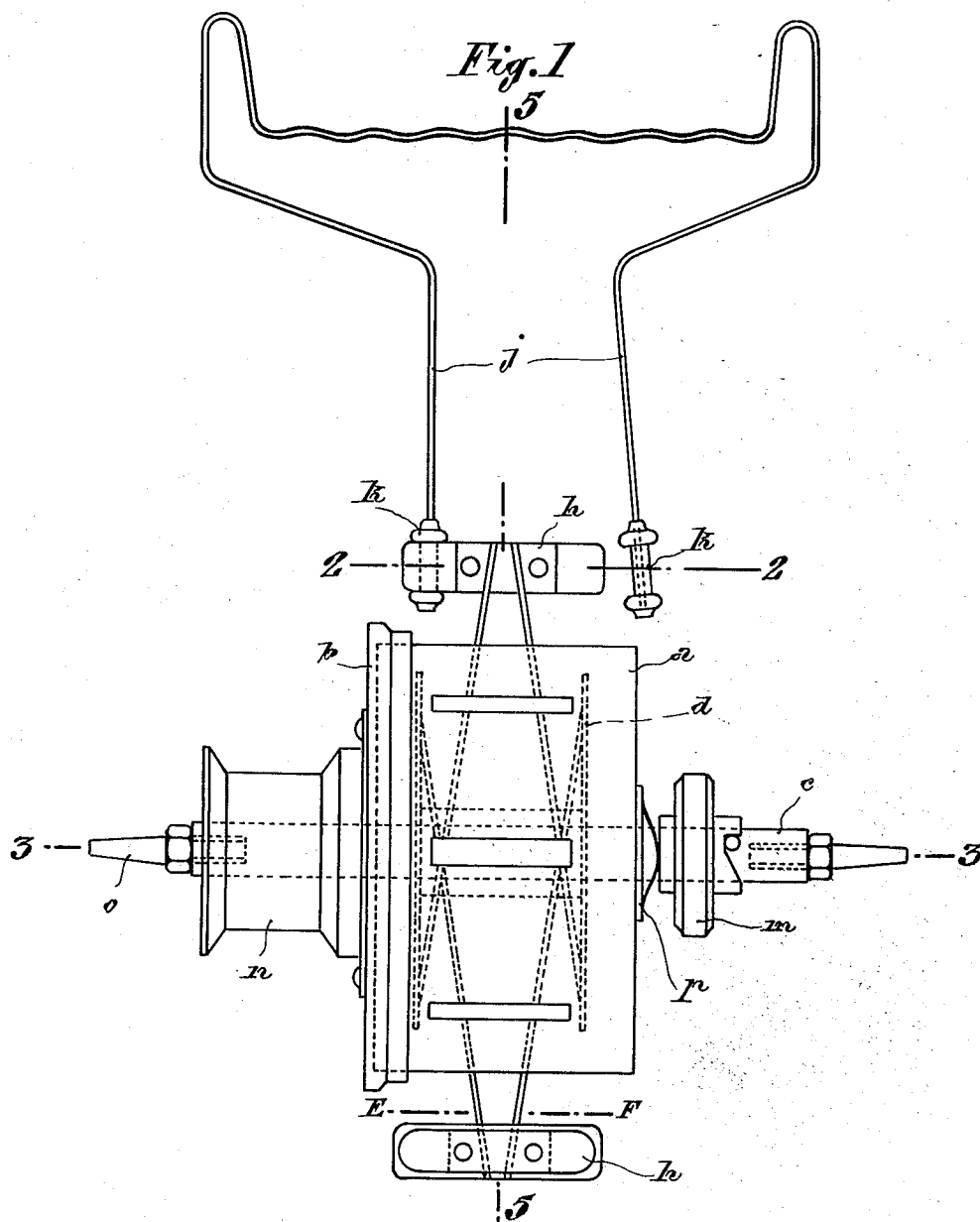
A. GUBELMANN

1,920,556

EXTENSIBLE SWIFT FOR THE WINDING OF HANKS OF SILK,
COTTON, OR OTHER YARNS OF DIFFERENT DIAMETERS
Filed Dec. 11, 1931 3 Sheet

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3 Sheets-Sheet 1



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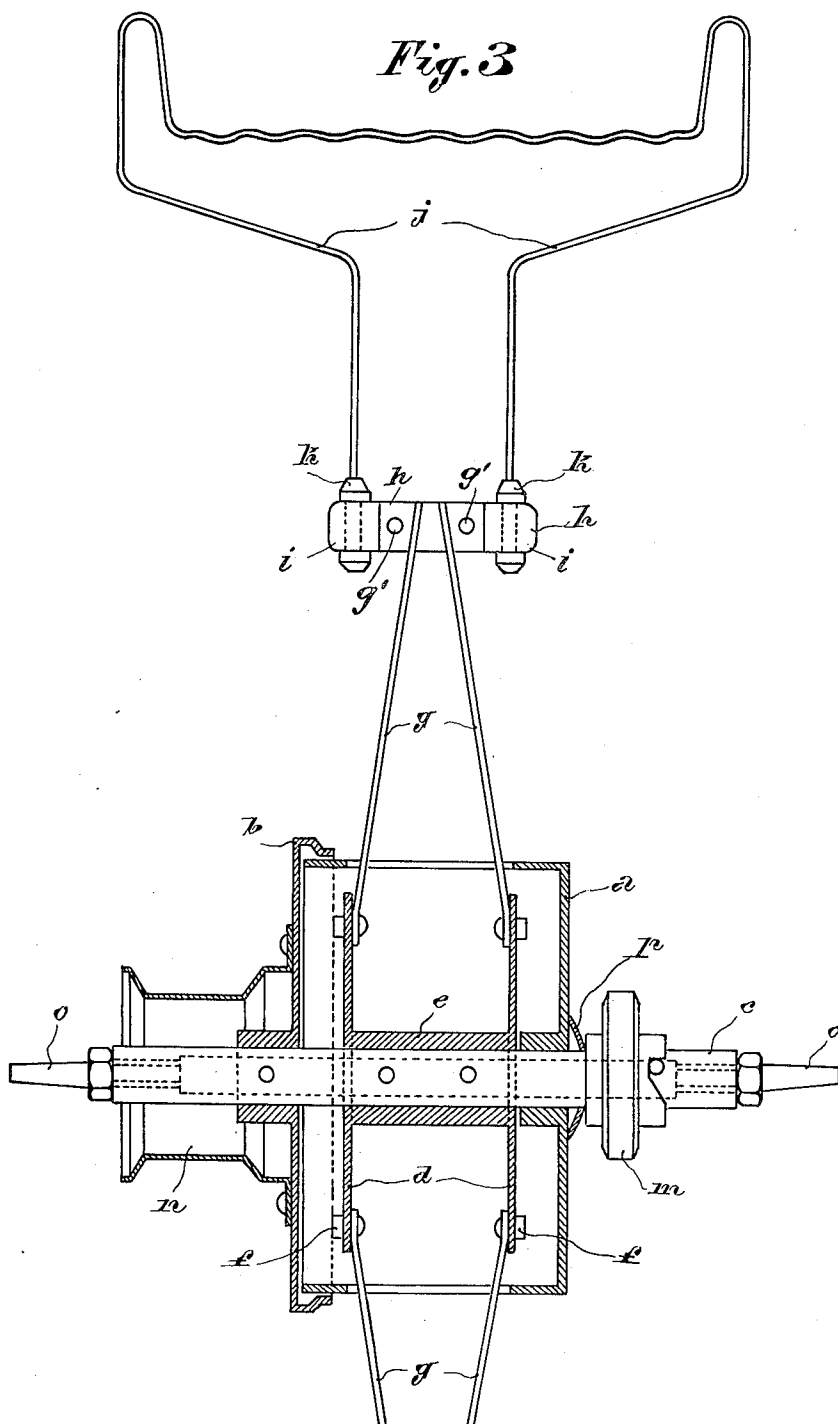
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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

Fig. 4

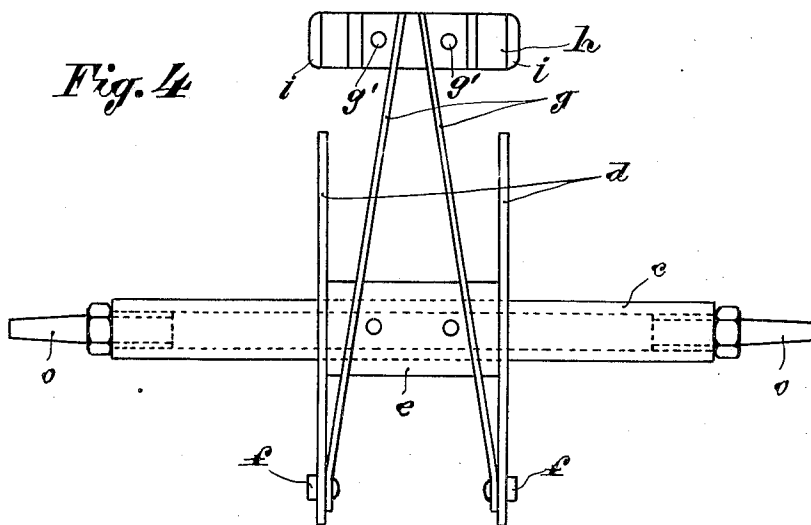
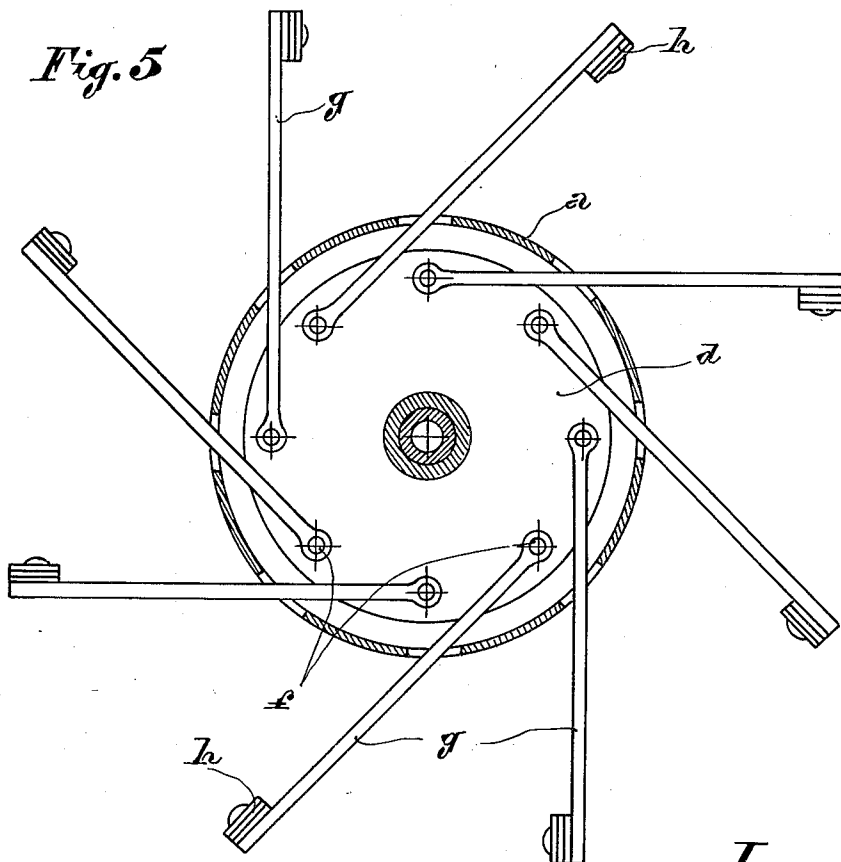


Fig. 5



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UNITED STATES PATENT OFFICE

1,920,556

EXTENSIBLE SWIFT FOR THE WINDING OF
HANKS OF SILK, COTTON, OR OTHER
YARNS OF DIFFERENT DIAMETERS

Alfred Gubelmann, Villeurbanne, France

Application December 11, 1931, Serial No. 580,423,
and in France April 1, 1931

3 Claims. (Cl. 242-111)

The present invention relates to an extensible swift for the winding of hanks of silk, cotton or other yarns of different diameters of the type in which by rotation of central cage with respect to the shaft the arms supporting the hanks are moved radially.

This extensible swift in order to increase the possible variation in diameter is essentially characterized by each supporting member being formed with two connecting arms inclined towards each other alternately to right and left of their pivots so that in the contracted position they will not foul adjacent arms.

The invention also includes a further arrangement in which each of the aforesaid arms are connected together in pairs at their ends by one or more cross members which form two open resilient straps in which the arms are held and which are therefore readily interchangeable.

The invention will be described with reference to the accompanying drawings:—

Fig. 1 is an elevation showing the arms in the contracted position.

Fig. 2 is a section on line 2—2, Fig. 1.

Fig. 3 is an elevation partly in section on line 3—3, Fig. 1, with the cranks rotated to extend the arms to their maximum extent.

Fig. 4 shows the inner discs with a pair of connecting arms rotated to give the arms their minimum diameter.

Fig. 5 is a transverse section on line 5—5, Fig. 1, with the arms in an intermediate position.

The apparatus comprises a cylindrical cage *a* freely mounted on a shaft *c* and having a surrounding flanged disc *b* affixed to the shaft *c*.

Inside the cage *a* is a sleeve *e* supporting two flanges or discs *d*. The sleeve *e* is keyed to the shaft *c* so that the members *b*, *c*, *e* and *d* are relatively stationary.

The discs *d* carry pins *f*, at equal distances from their centres, on which are pivoted preferably on the inside of the discs, connecting arms *g* (Figs. 3 and 4).

A connecting arm *g* on the left hand disc together with a corresponding one on the right hand disc form a pair. The number of these pairs of arms may be 4, 5, 6, 7, 8, 9, 10, 11, 12 or more. In Fig. 5 a swift is shown having 8 pairs of arms.

The end of a connecting arm *g* on the left and that of one on the right hand disc are connected together by two cross members *h* as shown in Fig. 2, by means of rivets *g'*.

It should be noted that the connecting arms are not parallel but on the other hand are in-

clined one to the right and the other to the left towards each other.

This inclined position with respect to the disc *d* is the characteristic arrangement of the present invention and is necessary in order that the pairs of connecting arms shall not foul each other when they are withdrawn to their limit into the cage *a*.

By this arrangement of mounting each pair of arms is connected together at its outer end by a cross member *h* and at its other ends to the pivots *f* on the discs *d* (Figs. 3 and 4).

If desired the connecting arms may be mounted outside the discs in which case their inclination will be reversed.

The connecting arms pass through slots or openings in the cage *a*.

By holding the cage *a* (Figs. 1 and 3) stationary and rotating the flanged discs *b* in relation thereto all the connecting arms can be withdrawn to a greater extent into the cage or conversely by rotation in the opposite direction made to project to a greater extent therefrom.

With this arrangement of inclined connecting arms the greatest variation, taking in consideration the distance of the pivoting points *f* from the centre, in the diameter of the swift is obtainable.

Figs. 3 and 4 show respectively the maximum and minimum diameters. Further according to another feature of the invention each cross member *h* for the pairs of connecting arms is formed of two members of spring steel curved at their outer ends to form two straps or resilient clamps *i* (Fig. 2).

This arrangement increases considerably the range of each swift since the cross members of the connecting arms may be fitted with any length of yarn supporting arms *j*.

Each yarn supporting arm *j* is formed with two portions *k* (Figs. 1 and 3) which are engaged between the two ends of the clamps *i* which allows for readily detaching and changing the arms.

Thus for each length of arm *j* there is a minimum and a maximum diameter and between these two diameters any required diameter can be obtained by rotating the flanged disc *b* in relation to the cage *a*.

When the hank is on the swift and the required diameter has been obtained the arms are locked by a fast pitch locking nut *M* or by a grub screw. Between the lock nut *M* and the cage *a* a compensating spring *p* in the shape of a star may be inserted.

In Figs. 1 and 3 a brake drum *n* is shown affixed to the flanged disc *b* but it may be keyed to the shaft *c*.

In Figs. 3 and 4 the shaft *c* is hollow and is provided with two interchangeable pivots *o* which may be screwed or affixed by lock nuts.

As will be understood the invention is not limited to the arrangements described nor to their different parts but includes any modification comprising an equivalent arrangement.

What I claim as my invention and desire to protect by Letters Patent is:—

1. An expansible swift for hanks of textile yarn of the type referred to comprising a shaft, a slotted cage loosely mounted on the shaft, discs keyed to the shaft one at each end of the cage, a plurality of converging arms pivoted in pairs on the discs with each pair projecting through a slot in the cage, a pair of resilient transverse members connecting the two arms of each pair together and yarn carrying arms secured to the transverse members.

2. An expansible swift for hanks of textile

yarn of the type referred to comprising a shaft, a slotted cage loosely mounted on the shaft, discs keyed to the shaft one at each end of the cage, a plurality of converging arms pivoted in pairs on the discs with each pair projecting through a slot in the cage, a pair of resilient transverse members connecting the two arms of each pair together, clips on the ends of the transverse members, and yarn carrying arms mounted in the clips on the transverse members.

3. An expansible swift for hanks of textile yarn of the type referred to comprising a shaft, a slotted cage loosely mounted on the shaft, discs keyed to the shaft one at each end of the cage, a plurality of converging arms pivoted in pairs on the discs with each pair projecting through a slot in the cage, a pair of resilient transverse members connecting the two arms of each pair together, clips on the ends of the transverse members, yarn carrying arms mounted in the clips on the transverse members.

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25	100
30	105
35	110
40	115
45	120
50	125
55	130
60	135
65	140
70	145
75	150