

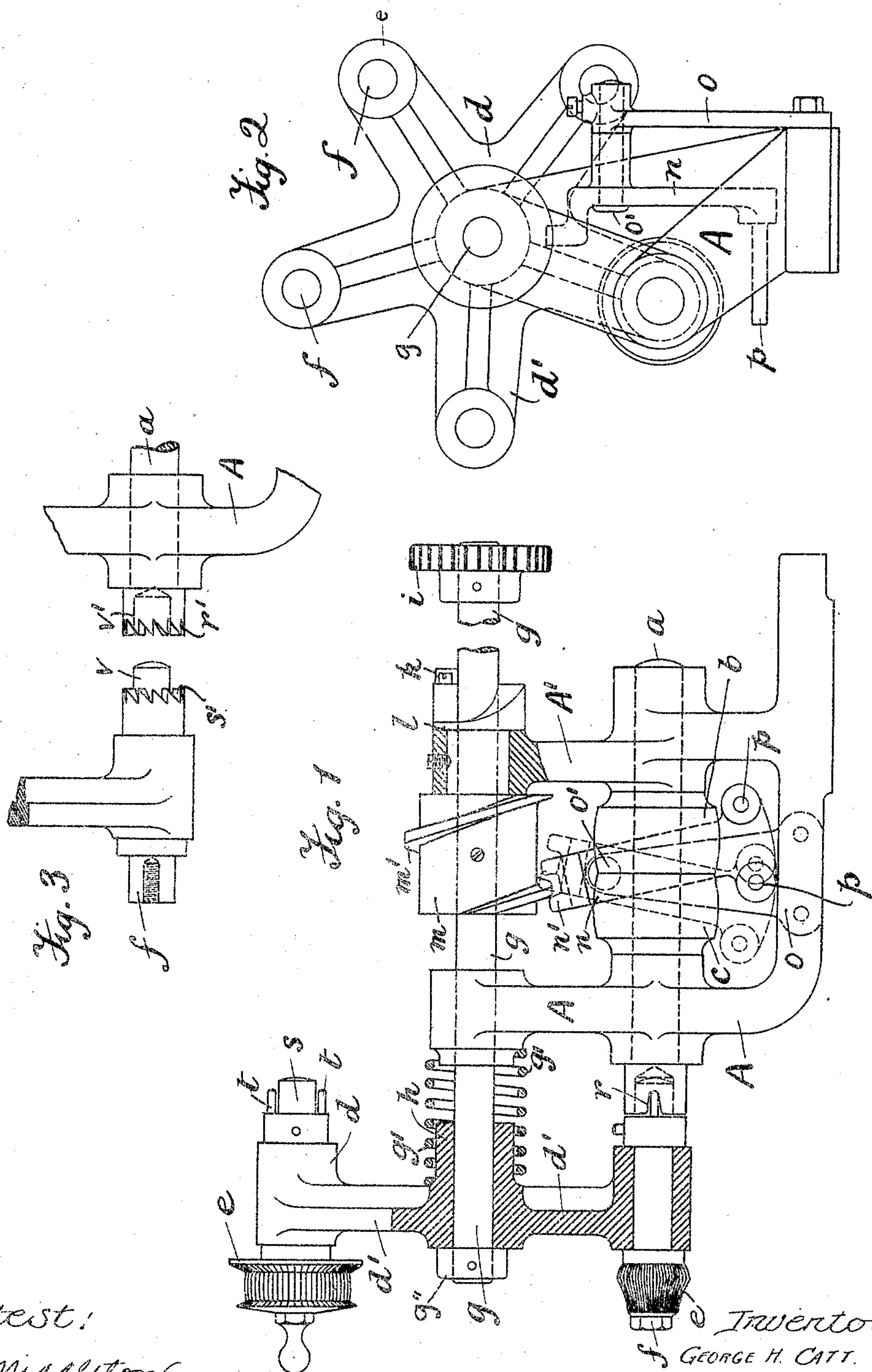
No. 780,089.

PATENTED JAN. 17, 1905.

G. H. CATT.

CAPSTAN HEAD FOR TRIMMING WHEELS.

APPLICATION FILED JAN. 19, 1904.



attest:

*Wm. Madison
Edward Barton*

Inventor
GEORGE H. CATT.
Richards & Co.
BY

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UNITED STATES PATENT OFFICE.

GEORGE HENRY CATT, OF LONDON, ENGLAND.

CAPSTAN-HEAD FOR TRIMMING-WHEELS.

SPECIFICATION forming part of Letters Patent No. 780,089, dated January 17, 1905.

Application filed January 19, 1904. Serial No. 189,709.

To all whom it may concern:

Be it known that I, GEORGE HENRY CATT, manufacturer, of 17 Maze Pond, Bermondsey, London, England, have invented a certain new and useful Capstan-Head for Trimming-Wheels, of which the following is a full, clear, and exact description and for which I have applied for Letters Patent in Great Britain, dated March 27, 1903.

This invention has reference to boot-making or boot-repairing machines, and relates more particularly to the wheels and rotary cutters known as "fore-part," "waist," and "heel" wheels and cutters which are used for trimming purposes in the handling of new and old (*i. e.*, being repaired) boots.

The invention consists, essentially, of a capstan device provided with a plurality of these cutters or wheels, any one of which when the capstan is rotated can be brought into position to be engaged by the driving-shaft of the machine. Hitherto in these machines it has been customary to insert only one wheel or cutter at a time, and when this required sharpening or replacement time was lost in inserting the new cutter. My invention provides a number of rotary cutters mounted on a single capstan head or frame, and by suitably rotating the capstan-head the cutters can be moved and the place of any one of them taken by another of the set. These rotary cutters or wheels may be of different sizes or widths, and where the wheels are provided with scouring material at the periphery they may be some fine and others coarse.

My invention also comprises means for automatically striking the driving-belt from the fixed pulley to a loose pulley when the capstan is being disengaged from the driving-shaft.

The invention is hereinafter described with reference to the accompanying drawings, in which—

Figure 1 is a side elevation, part section, of the machine fitted with the capstan device; and Fig. 2 is an end elevation of the same. Fig. 3 shows in elevation an alternative form of clutch device.

The shaft *a* is journaled in a bracket or support having upstanding arms or uprights *A A'* and is driven by means of a belt and pulleys *b c*,

the one fixed and the other loose on the shaft. A capstan device *d*, which may be of a star shape having arms *d'*, is pivoted at *g* upon the upright *A* of the bracket and to one side of the driving-shaft. This capstan device *d* is fitted with a number of rotary cutters or trimming-wheels *e*, mounted upon shafts *f*, passing through the said capstan or the arms *d'*, so that the cutters *e* are journaled and retained in the arms. These trimming-wheels are arranged equidistant from the center of the capstan and at such a distance that the shaft of any one cutter can be brought opposite to the driving-shaft *a*. Shaft *a* and the shafts *f* are provided with means for engagement, so that any one of the cutters can be driven by the shaft *a*, the capstan being meanwhile stationary on its pivot.

The second part of my invention relates to means for controlling the connection between the driving-shaft and the cutters or wheels and for striking the driving-belt from one of its pulleys to the other.

The pivot of the capstan device is shown extended as a second shaft *g*, mounted in the aforesaid support and passing through the uprights *A A'*. The boss *h* of the capstan *d* bears against a head *g''* upon the shaft *g* by means of a spring *g'* coiled about the shaft and the boss *h*, and this spring bears at its other end against the upright *A*. This shaft *g* is fitted at its other end with a milled knob or handle *i*, whereby the shaft may be rotated, and with a lateral pin *k*, bearing against a cam-shaped shoulder *l*, formed upon the boss of the upright *A'*, so that as the shaft *g* is rotated it slides longitudinally, the spring *g'* keeping the pin *k* against the cam-shaped shoulder *l*. The shaft *g* is also provided with a collar *m*, secured to the shaft and fitted with a worm *m'* of quick pitch. Space is left between this collar *m* and the upright *A*, so that the collar can move with the shaft *g* toward the capstan device *d*. This worm-thread *m'* engages a segmental worm-wheel *n'*, secured to one extremity of a tumbler-lever *n*, pivoted at *o'* upon a support *o*, attached to or formed with the bracket. The other end of tumbler-lever *n* is provided with pins or rollers *p*, adapted to engage and guide the driving-belt

of the machine. The tumbler-lever n and its pins p thus act as a striking-fork for the belt, and this striking-fork is actuated from the second shaft g , on which the capstan is mounted. The pitch of the worm m' must be such that when the shaft g and collar m advance in the direction of the capstan the lever n is sharply driven to its opposite position, as shown in dotted lines, Fig. 1.

The connection between each of the shafts f and the driving-shaft a may be made by means of any positive clutch device. On the drawings I have shown in Fig. 1 a web s , arranged in the diameter and across the end of the cutter-shaft f , capable of engaging a diametrical slot r in the driving-shaft a . Pins t , outstanding from the shaft f and in line with the web s , also enter the slot r when the shafts are engaged.

In an alternative form of positive clutch, Fig. 3, I employ a ratchet-toothed end r' to the driving-shaft a , capable of engaging a correspondingly-toothed end s' to each of the cutter-shafts. A center pin v , projecting from the end s' , is shown adapted to enter a cylindrical recess v' in the driving-shaft, and thus guide the ratchet ends r' s' into engagement.

The tumbler-lever n being in the position of Fig. 1, the shaft a is driven by the belt passing around pulley b , and the shaft a is in engagement with one of the cutter-shafts f . This rotary cutter is therefore driven by the shaft a . When it is desired to change the cutter, the hand-wheel i is revolved (clockwise in the arrangement illustrated) and the pin k travels around the cam-shoulder l , so that the shaft a moves forward longitudinally. This results in the capstan device being disengaged from the driving-shaft a . During the rotation of the hand-wheel i , however, the worm m' engages and tilts backward the top of tumbler-lever n , which is pivoted at o' . The bottom part of this lever therefore moves forward and guides the belt onto pulley c , which revolves idly, and the shaft a stops. The capstan is rotated until the new cutter is opposite the driving-shaft, when upon reversing the movement of hand-wheel i the new cutter or trimming-wheel is brought against the driving-shaft a and engaged thereby. The tumbler-lever n returning to its former position, the belt is struck to the fixed pulley b , so that the new cutter is forthwith driven by the shaft a .

In Fig. 2 the shafts of five rotary cutters or trimming-wheels are indicated, one at the end of each arm d' . In Fig. 1, however, for the sake of clearness, only two arms d' and trimming-wheels are shown.

Having thus described my invention, what I claim as such, and desire to secure by Letters Patent, is—

1. A support, a driving-shaft journaled in said support, said shaft having mounted thereon loose and fixed pulleys whereby said shaft

may be belt-driven, a second shaft also journaled in said support, a capstan device mounted on said second shaft and having a plurality of radial arms furnished with rotary trimming-wheels, means for connecting said wheels to the driving-shaft to rotate the same, means whereby said second shaft may be advanced longitudinally to disconnect said wheels from said driving-shaft, said means for advancing the second shaft being combined with means for striking the belt from the fixed to the loose pulley on the driving-shaft.

2. A support, a belt-driven shaft journaled in said support, a second shaft journaled in said support, a capstan mounted on said support and having a plurality of rotary trimming-wheels, means whereby said wheels may be engaged and driven by said belt-driven shaft, means for disconnecting said wheels from said belt-driven shaft, and means for stopping the belt-driven shaft, the disconnection of the cutter-wheels from the belt-driven shaft being effected by the same movement which causes the belt-driven shaft to be brought to rest.

3. A support, a driving-shaft journaled in said support, said shaft having mounted thereon loose and fixed pulleys whereby said shaft may be belt-driven, a second shaft also journaled in said support, a capstan device mounted on said second shaft and having a plurality of radial arms furnished with rotary trimming-wheels, means for connecting said wheels to the driving-shaft to rotate the same, means whereby said second shaft may be advanced longitudinally to disconnect said wheels from said driving-shaft, a worm of quick pitch mounted on said second shaft, a tumbler-lever pivoted on said support, said lever acting as a striking-fork for the belt and being geared to said worm, so that when said rotary wheel is being disconnected from the driving-shaft the belt is struck from the fast to the loose pulley.

4. A support, a driving-shaft journaled in said support, said shaft having mounted thereon loose and fixed pulleys whereby said shaft may be belt-driven, a second shaft also journaled in said support, a capstan device mounted on said second shaft and having a plurality of radial arms furnished with rotary trimming-wheels, means for connecting said wheels to the driving-shaft to rotate the same, said support having a cam-shaped shoulder thereon, a pin upon said second shaft bearing against said shoulder so that when turned said second shaft can move longitudinally and means for striking the belt from the fixed to the loose pulley on the driving-shaft.

5. A support, a driving-shaft journaled in said support, said shaft having mounted thereon loose and fixed pulleys whereby said shaft may be belt-driven, a second shaft also journaled in said support, a capstan device mounted on said second shaft and having a plurality

of radial arms furnished with rotary cutter-wheels, means for connecting said wheels to the driving-shaft to rotate the same, said support having a cam-shaped shoulder thereon, a pin upon said second shaft bearing against said shoulder a coiled spring upon said second shaft between said capstan and said support and means for striking the belt from the fixed to the loose pulley on the driving-shaft.

6. A support, a driving-shaft journaled in said support, said shaft having mounted thereon loose and fixed pulleys whereby said shaft may be belt-driven, a second shaft also journaled in said support, a capstan device mounted on said second shaft and having a plurality of radial arms furnished with rotary trimming-wheels, means for connecting said wheels to the driving-shaft to rotate the same, said support having a cam-shaped shoulder thereon, a pin upon said second shaft bearing against said shoulder a coiled spring upon said second shaft, said spring bearing at one end upon the boss of the capstan and at the other end against the said support, a belt-striking fork pivoted upon said support, said striking-fork being operated by the rotation of the second shaft, whereby the belt may be struck from the fixed to the loose pulley.

7. A support, upstanding arms to said support, a driving-shaft and a second shaft journaled in said arms, a capstan having a plurality of rotary cutting-wheels mounted upon

said capstan, means for engaging said driving-shaft with each of said cutting-wheels, means for advancing said second shaft whereby the cutting-wheel is disconnected from said driving-shaft, fast and loose belt-pulleys upon said driving-shaft, a belt-striking fork pivoted upon said support, said fork striking the belt from the fast to the loose pulley as the second shaft is advanced.

8. A support, upstanding arms to said support, a driving-shaft and a second shaft journaled in said arms, a capstan having a plurality of rotary trimming-wheels mounted on said capstan, means for engaging said driving-shaft with each of said trimming-wheels, means for rotating and advancing said second shaft, a coiled spring upon said second shaft compressed between said capstan and said support, fast and loose belt-pulleys upon said driving-shaft, a belt-striking fork-lever pivoted upon said support intermediate of said arms upon said support, said fork-lever being thrown from one side to the other by the longitudinal and rotary movements of the said second shaft.

In witness whereof I have hereunto set my hand in presence of two witnesses.

GEORGE HENRY CATT.

Witnesses:

HARVEY BAVERSTOCK,
JOSEPH W. HOFLEY.