(No Model.) 2 Sheets—Sheet 1.

H. C. KITCHING.

DEVICE FOR HOLDING AND STRETCHING CARD CLOTHING WHILE BEING ATTACHED TO CARDING CYLINDERS.

No. 492,404. Patented Feb. 28, 1893.

FIG. 1.

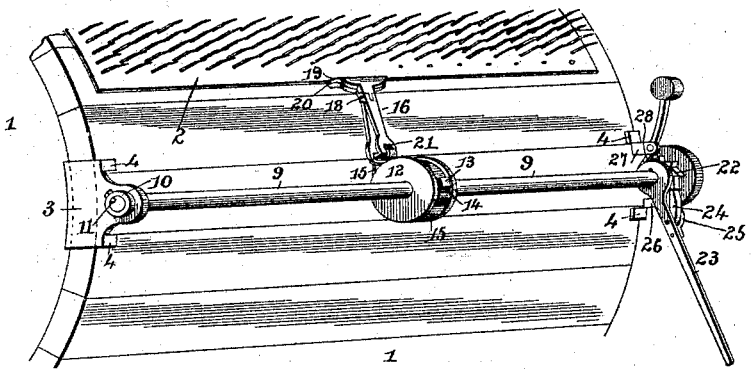
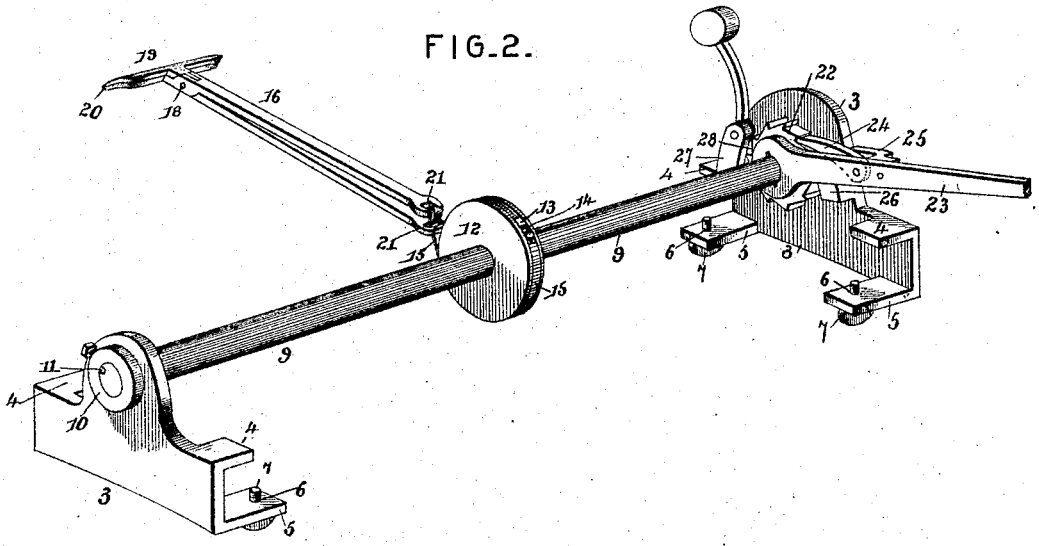


FIG. 2.



Witnesses

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(No Model.) 2 Sheets—Sheet 2.

H. C. KITCHING.

DEVICE FOR HOLDING AND STRETCHING CARD CLOTHING WHILE BEING ATTACHED TO CARDING CYLINDERS.

No. 492,404. Patented Feb. 28, 1893.

FIG. 3.

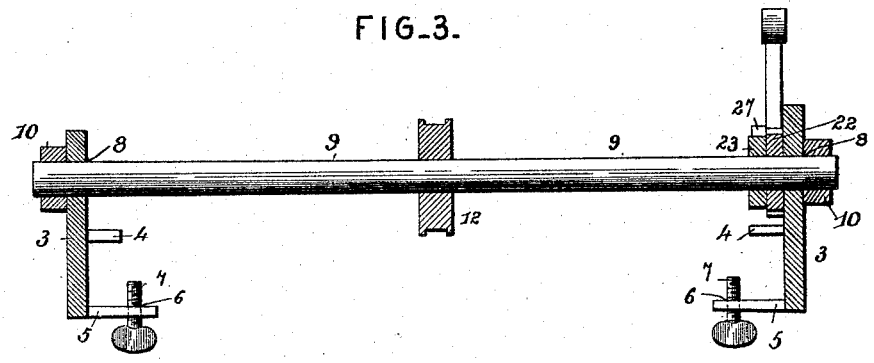


FIG. 4.

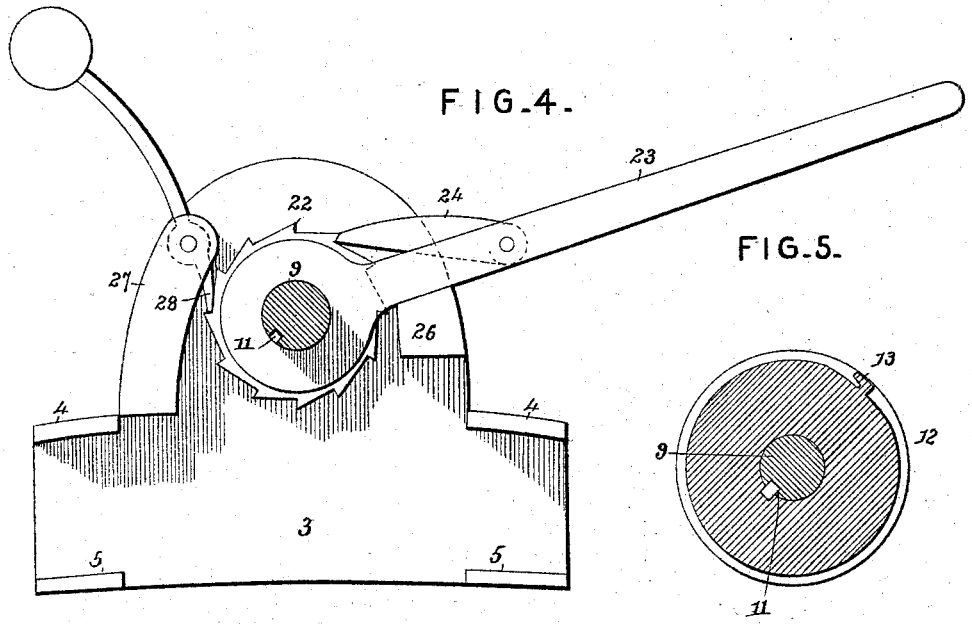
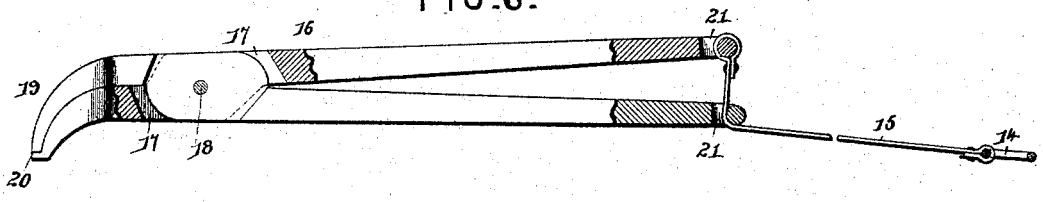


FIG. 5.

FIG. 6.



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UNITED STATES PATENT OFFICE.

HENRY C. KITCHING, OF LICKING, MISSOURI.

DEVICE FOR HOLDING AND STRETCHING CARD-CLOTHING WHILE BEING ATTACHED TO CARDING-CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 492,404, dated February 28, 1893.

Application filed November 7, 1892. Serial No. 451,215. (No model.)

To all whom it may concern:

Be it known that I, HENRY C. KITCHING, a citizen of the United States, residing at Licking, in the county of Texas and State of Missouri, have invented a new and useful Device for Holding and Stretching Card-Clothing while being Attached to Carding-Cylinders, of which the following is a specification.

My invention relates to attachments for carding-machines for manipulating wool and cotton; and the objects in view are to provide a stretching device for evenly, rapidly, and effectually stretching the sheet-cards upon the main cylinder, thereby obviating the use of the usual hand-device or stretcher for this purpose.

With these as the main objects of my invention, the invention consists in certain features of construction hereinafter specified and particularly pointed out in the claims.

Referring to the drawings:—Figure 1 represents a portion of a carding cylinder provided with my attachment, the same being in the act of stretching a sheet-card thereon. Fig. 2 is a detail in perspective of the attachment. Fig. 3 is a longitudinal sectional view. Fig. 4 is a transverse sectional view looking toward the pawl and ratchet mechanism. Fig. 5 is a detail in transverse section of the winding pulley and its supporting shaft. Fig. 6 is a detail in section of the clamping-stretcher.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 designates the main cylinder of a carding machine for carding wool or cotton, and the same is provided upon its periphery with the usual cards 2, which as is well-known, consist of a series of sheets having teeth extending from their exteriors, with the exception of their edges which are tacked to the surface of the cylinder. The cylinder, as is usual, is hollow being supported upon its axle or shaft by suitable spokes radiating from the hub.

In constructing the attachment I provide a pair of opposite clamping-standards 3, which standards have their inner faces provided with pairs of upper short lugs 4, and pairs of longer lugs 5, the latter lugs being radially opposite the former lugs. The lower lugs 5, are provided with perforations or threaded openings 6, and in these are inserted binding-screws 7, which project upwardly through the lugs. The lugs 4 and 5, which are arranged in radially opposite pairs, are such a distance apart as to readily take over the edges of the cylinder, and through the medium of the binding-screws 7 may be secured at any point along said edges; and in this manner, as will be obvious, the standards may be adjusted for the purpose hereinafter made apparent. Each of the standards above the lugs 4 is provided with a bearing-opening 8, and the same has journaled therein the opposite ends of a transverse shaft 9, which by the standards is supported over the periphery or surface of the cylinder. Collars 10, are secured to the outer ends of the shaft, and prevent disengagement therewith of the standards. The shaft is provided with a longitudinal groove 11, of proper depth and extending throughout the length thereof, or at any rate, throughout the distance between the bearings.

12 designates a flanged pulley splined to loosely slide upon the shaft, and the same has its periphery between its flanges provided with an undercut lug 13, to which is connected removably a metal eye or link 14, the same being attached to a flat, flexible, and preferably leather, strap 15.

16 designates a pair of plier-members or levers, which are mutually recessed in the usual manner, as indicated at 17, and are pivoted at 18. Beyond their pivot the said plier-members are provided with downwardly-curved clamping-jaws 19, the lower jaw at its extremity having a lip 20, which takes under the lower edge of the upper jaw. Each of these members at its rear or inner end is provided with an eye 21, and to the end of the eye or cross-bar of the upper member the aforesaid strap 15 is secured, the same being passed downward through the eye of the lower member, and then as before described, removably attached by its metal link to the undercut stud 13.

The shaft 9 has secured thereto adjacent to one of the standards 3, a ratchet-wheel 22, and located at one side thereof is a lever 23, which is loosely mounted upon the shaft and provided at one side with a pawl 24, pivoted in a bracket 25, extending from the outer side of the lever, said pawl at its lower end being

designed to rotate in or engaged with the teeth of the ratchet-wheel 22 when the lever is swung in one direction, and to loosely ride thereover when swung in the opposite direction. A stop-lug 26, projects from the inner face of the standard adjacent to which said lever is located and serves to limit the movement of the lever in a downward direction. At the opposite side of the shaft to which the stop-lug is located, there projects from the inner face of the aforesaid standards 3 a bracket 27, and pivoted in said bracket intermediate its ends is a curved pawl 28, the lower or tooth-end of which is designed to engage with the teeth of the ratchet-wheel when said wheel moves in one direction and to glide over said teeth when the wheel moves in an opposite direction, while the upper end of said pawl is weighted at one side of the fulcrum-point, whereby its lower end is always maintained in engagement with the teeth of said ratchet-wheel. This completes the construction of the attachment, whose operation though apparent, I will proceed to describe.

One edge of the card having been adapted to the surface of the cylinder, the attachment is secured in the manner heretofore described to the cylinder a short distance beyond the free or untacked edge, after which the pulley 12 of the attachment is moved to one end of its shaft and the pliers or clamp opened and closed upon the free edge of the card. The pulley is splined upon the shaft so that when the shaft is operated or rotated by successive vibrations of the lever 23, the pulley revolves and winds the flexible strap thereupon. The draft upon the strap serves to snugly bind the members of the clamp or pliers together, so that a firm bite upon the card is taken by the jaws. In this manner it will be seen that the card may be stretched effectually and as soon as a sufficient stretching has been accomplished, that portion of the card thus stretched and in line with the clamping jaws of the pliers is securely tacked to the cylinder. The pulley is now slid the distance of the jaws and a new hold is taken, said pulleys and shaft having been revolved or retrograded so as to permit of the re-engagement or clamping of the pliers upon the card. This retrogression of the pulley and shaft is readily accomplished by a disengagement of the two pawls, the holding pawl being weighted at its upper end and therefore assuming a position at either side of its pivot. In this manner the entire width of the card is operated upon so that finally the card is secured tightly stretched upon the cylinder. When the last card is being placed in position it will be seen that the attachment will be over the first card, and it is desirable that no part of the same should touch the teeth of said first card, and therefore inasmuch as the pliers if straight would touch the teeth, I construct the pliers with curved jaws so that though the free edge of the last card applied is brought down close to the cylinder yet the levers or members of the pliers are located some distance above the cylinder. In this manner the last card applied may be stretched as snugly and tightly as its companions and yet the teeth of the first card will not be interfered with.

From the foregoing description, in connection with the accompanying drawings, it will be seen that I have provided a cheap and simple attachment for the cylinders of carding-machines, whereby the cards may be successively and securely stretched thereupon, and whereby I avoid the use of the usual hand-device for this purpose, reducing the work or labor to a minimum and at the same time affording means for securing the last card of the series as securely and well stretched upon the machine as any of its companions.

It is to be understood that changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. In a card-stretching attachment for cylinders of carding-machines, the combination with opposite standards provided with clamping-devices for embracing and clamping the inner and outer surfaces of the cylinder and provided near their outer ends with bearings, of a shaft journaled in the bearings, a pulley splined to slide upon the shaft, and rotate therewith means for rotating said shaft, a card-clamping device, and a flexible connection between the pulley and clamping-device, substantially as specified.

2. In a card-stretching attachment for cylinders of carding-machines, the combination with opposite cylinder-clamping-standards, the shaft journaled loosely therein, and means for rotating the shaft, of a pulley splined upon the shaft, a card-clamping device, a flexible strap secured to the clamping-device, a lug on the periphery of the pulley, and an eye on the strap for removably engaging the lug, substantially as specified.

3. In a card-stretching attachment for cylinders of carding-machines, the combination with the opposite standards and means for securing them to the opposite edges of the cylinder, the shaft terminating therein, means for rotating the shaft, and the pulley splined thereon, of the flexible strap connected to the pulley and the pliers connected to the strap and terminating at its outer ends in a pair of card-clamping jaws which are downwardly curved the lower jaw being provided with a lip 20 extending under the clamping edge of the upper jaw, substantially as specified.

4. In a card-stretching attachment for cylinders of carding-machines, the combination with the standards having the upper and lower lugs, the latter provided with threaded openings having clamping screws and above the same provided with bearing-openings, the shaft journaled in the openings and provided with a longitudinal groove, and the pulley

splined upon the shaft, of the flexible strap connected to the pulley, the card-clamping pliers connected to the strap, the ratchet-wheel on the shaft, the lever loosely connected with the shaft at one side of the ratchet-wheel, the pawl for engaging the wheel pivoted to the lever, a stop for the lever, a bracket at the opposite side of the shaft projecting from one of the standards, and a weighted pawl pivoted intermediate its ends to said bracket and engaging the teeth of the ratchet-wheel and above its pivot curved to one side of its fulcrum or pivot-point, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

HENRY C. KITCHING.

Witnesses:
W. G. PAINE,
E. L. HOBSON.