(No Model.) 2 Sheets—Sheet 1.

A. HITCHON

DEVICE FOR ADJUSTING THE BENDS OF TRAVELING FLAT CARDING ENGINES.

No. 494,422. Patented Mar. 28, 1893.

Fig. 1.

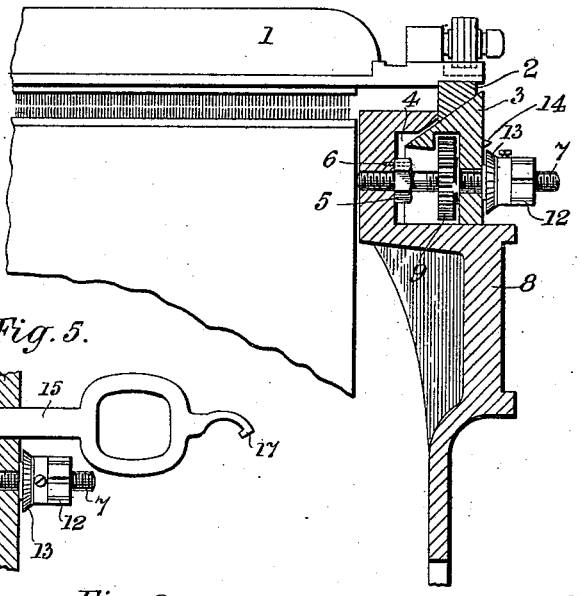


Fig. 5.

Fig. 2.

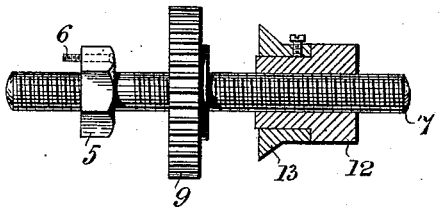


Fig. 3.

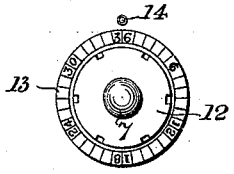
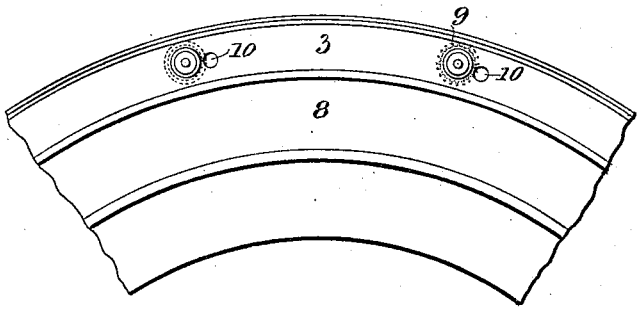


Fig. 4.



Witnesses.
Thos. B. Gray
E. M. Moore

Inventor.
Alfred Hitchon

(No Model.) 2 Sheets—Sheet 2.

A. HITCHON.

DEVICE FOR ADJUSTING THE BENDS OF TRAVELING FLAT CARDING ENGINES.

No. 494,422. Patented Mar. 28, 1893.

Fig. 10.

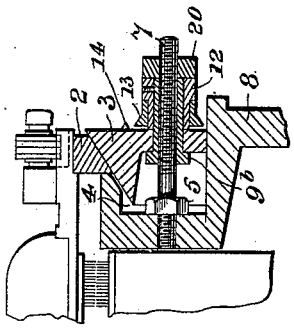


Fig. 8.

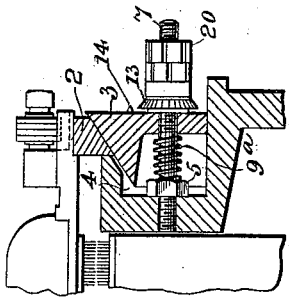


Fig. 9.

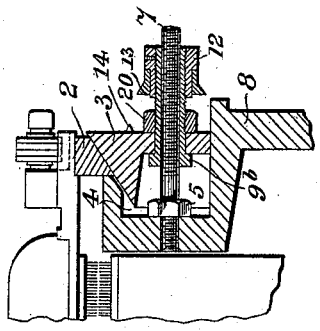


Fig. 6.

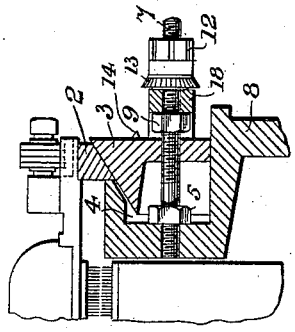
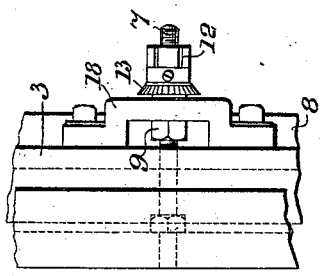


Fig. 7.



Witnesses.

Inventor.

Alfred Hitchon

UNITED STATES PATENT OFFICE.

ALFRED HITCHON, OF ACCRINGTON, ENGLAND.

DEVICE FOR ADJUSTING THE BENDS OF TRAVELING-FLAT CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 494,422, dated March 28, 1893.

Application filed November 26, 1892. Serial No. 453,194. (No model.) Patented in England August 5, 1891, No. 13,220.

To all whom it may concern:

Be it known that I, ALFRED HITCHON, a subject of the Queen of Great Britain, residing at Accrington, in the county of Lancaster, England, have invented certain new and useful Improvements in Devices for Adjusting the Bends of Traveling-Flat Carding-Engines, (for which I have obtained Letters Patent in Great Britain under date of August 5, 1891, No. 13,220,) of which the following is a specification.

My invention relates to the class of carding engines having segments of flexible cone shaped rings (known as bends) over which slide the revolving card flats, my invention being directed to improvement in the means employed for adjusting such bends so that the distance of the teeth of the cards on the flats from the teeth on the cylinder may be easily and accurately adjusted.

To clearly explain my invention reference is made to the accompanying drawings, in which—

Figure 1 is a sectional elevation of a part of a carding engine, card flat and adjusting devices. Fig. 2 shows on an enlarged scale a portion of the adjusting device detached from the engine. Fig. 3 is a front view of Fig. 2 showing the face of the adjusting dial and dial reading point only. Fig. 4 is a side view of a portion of a carding engine on a smaller scale than Fig. 1 but without the card flat or the bend. Fig. 5 is a plan view of a part of the adjusting devices shown in Fig. 1 with the addition of a key the object of which will be hereinafter explained. Fig. 6 illustrates a slight modification of the adjusting device. Fig. 7 is a plan of same. Figs. 8, 9 and 10 are further modifications.

Before describing the details of my invention I will say that it is particularly directed to the adjusting device patented in the United States under No. 405,625 by one E. Tweedale my object being to simplify the construction of such device.

In the drawings 1 is the card flat supported at each end on the usual bends 2 which rest in turn on the segment rings 3 supported by the side frames 8 such ring 3 partly entering a recess 4 formed in the frame. In the ring 3 is a hole and passing through this with a suitable clearance is a screw threaded rod 7 one end of which passes directly into the frame 8 and is there held by a nut 5 and a screw or pin 6. Outside of the segment ring 3 is a nut 12 carrying an index dial 13. This dial may be made in one with the nut 12 but is preferably in the form of a collar which is slipped onto the nut and is adjusted by means of a set screw as shown in Fig. 2 the object being to better enable all the index dials to be set or adjusted to read in unison. A fixed point 14 is provided on the outer face of the ring 3 for reading the dial. Inside of the ring 3 is a backing wheel or nut 9 having pinion teeth as shown and through the ring at the side of the screw 7 is a hole 10 (Fig. 4). As will be seen in this latter figure there are a number of these adjusting dials and connected parts arranged around the frame 8.

In the operation of the adjusting devices the segment ring may be first pushed in as far as it will go, the nut 12 is then screwed close up to it and the dials 13 on all the nuts are adjusted by means of the set screws so that they will read in unison and after this the nuts 12 are loosened the segments may be drawn out as desired to lower the bends 3, the backing nut or wheel 9 being screwed up close to the inside of the ring 3 when the proper adjustment is secured. To reach this wheel 9 I employ the tool 15 shown in Fig. 5. This consists of a suitable handle and rod carrying a pinion 16, segment or the like on one end while the other may have a tooth 17 which will engage with the notches shown on the nut 12 when it is required to turn the nut. As will be seen to operate the wheel 9 the pinion and rod of the tool 15 are inserted in the holes 10, the pinion 16 is caused to engage with the teeth of the wheel 9 and the handle is turned. In Figs. 6 and 7 the arrangement is the same but to obviate the use of the tool 15 brackets 18 attached to the outside of the segment 3 are used, such brackets exposing the backing nut 9 which in this case may be an ordinary one as shown.

In Fig. 8 a spiral spring 9^a is employed in place of the nut or wheel for the purpose of backing up the segment ring to the outside nut and a locking nut 20 outside the nut 12 is also shown.

In Fig. 9 the nut or wheel is replaced by a nut 9^b having an inside and outside threaded tubular collar as shown, the screwed rod 7 passing through the same while the nut 12 is carried outside. In this arrangement the tubular collar and nut 9^b are worked in or out on the rod 7 and are held in place by the lock nut 20 which works on the collar and nut 12, the latter in this case being outside the nut 20. In Fig. 10 the arrangement is reversed the nut 20 being outside the nut 12.

What I claim is—

1. In combination with the card flat, the bend 2, the segment ring 3, and the frame, a screw threaded rod passing loosely through the ring and secured to the frame, a nut and dial to screw upon the said rod against the outer side of the ring 3, and means for keeping the ring close against the dial, substantially as and for the purposes described.

2. In combination with the card flat, the bend, the segment ring 3, an index 14 upon the said segment ring, and the frame, a screw threaded rod passing loosely through the ring and secured to the frame, a nut, a dial adjustably secured to said nut to screw upon the said rod against the said ring, and means for keeping the ring close against the nut, substantially as and for the purposes described.

3. In combination with the card flat, the bend 2, the segment ring 3, and the frame, a screw threaded rod passing loosely through the ring and secured to the frame, a nut and dial to screw upon the said rod against the outer side of the ring 3, and a nut upon the screw-threaded rod to press the ring against the dial, substantially as and for the purposes described.

4. In combination with the card flat, the bend, the segment ring, and the frame, a screw threaded rod passing loosely through the ring and connected to the frame, a nut and dial to screw upon the said rod and hold the ring in said frame, and means bearing the ring against the dial and nut for holding the ring in position, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALFRED HITCHON.

Witnesses:
WM. B. GRAY,
E. W. HORNE.