(No Model.)

W. P. CANNING.

TRAVELING FLAT CARDING ENGINE.

No. 453,060. Patented May 26, 1891.

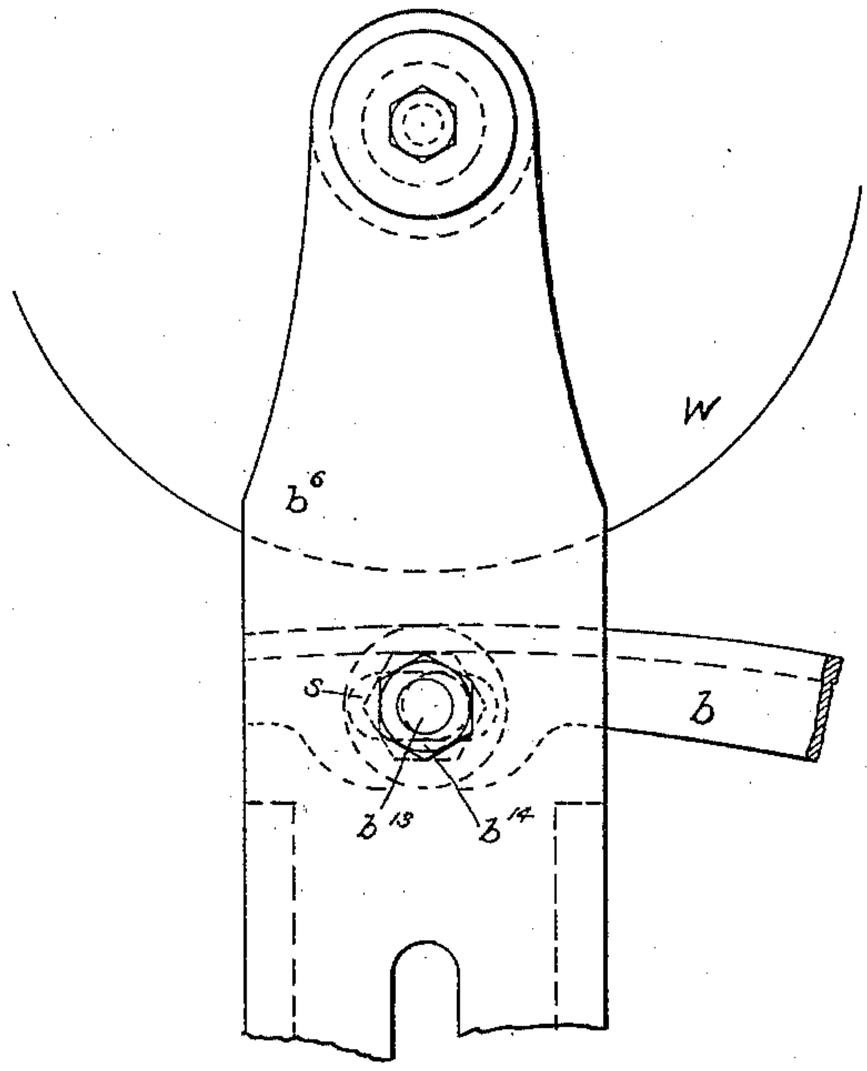

Fig. 1

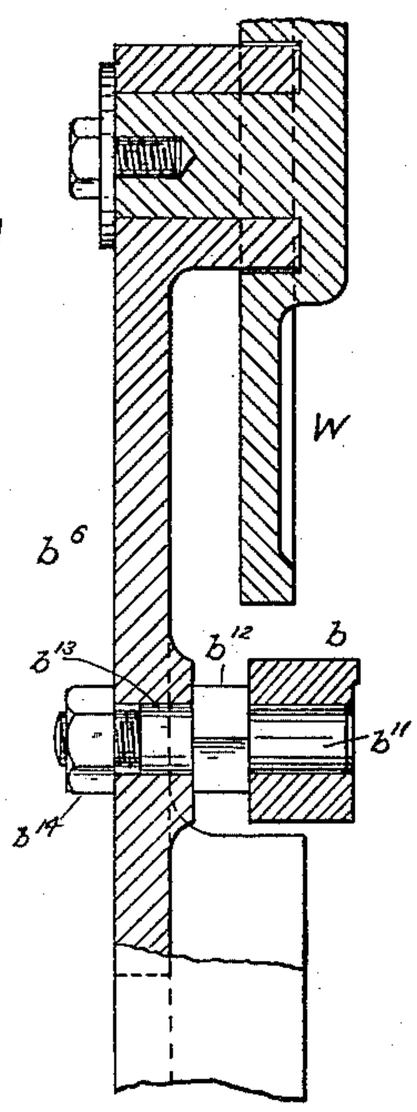

Fig. 2

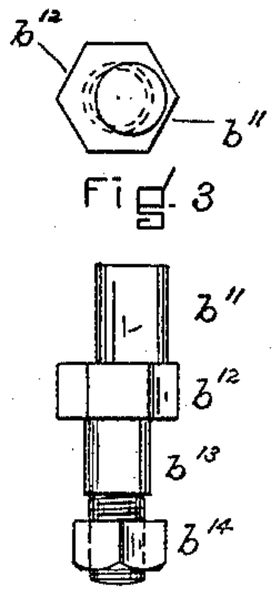

Fig. 3

Fig. 4

Fig. 5

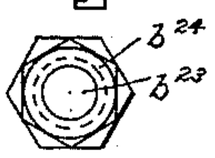

Fig. 6

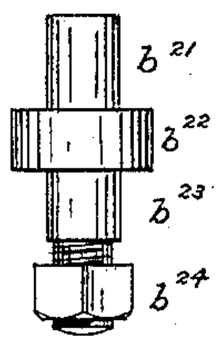

Fig. 7

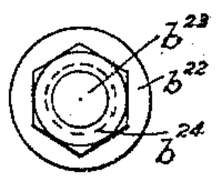

Fig. 8

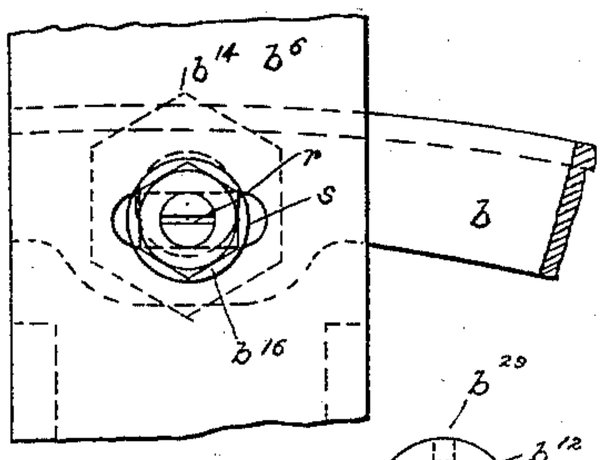

Fig. 12

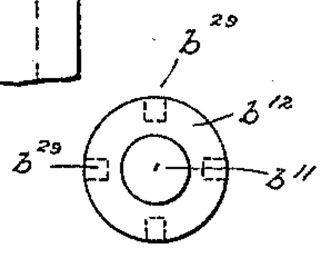

Fig. 9

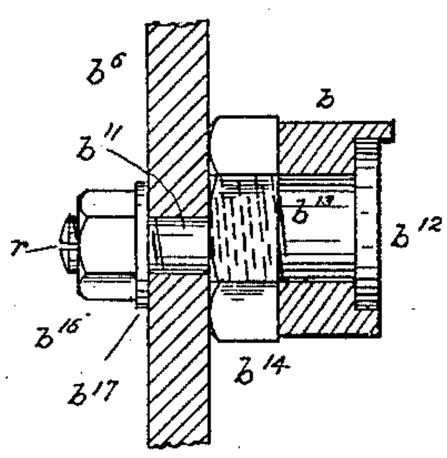

Fig. 13

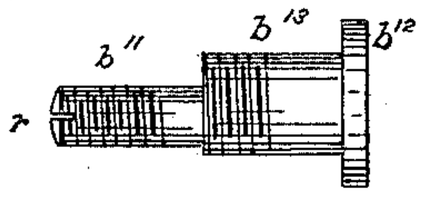

Fig. 14

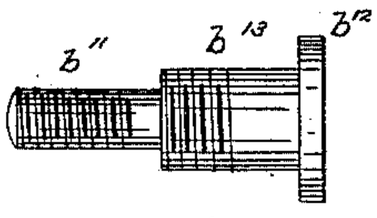

Fig. 15

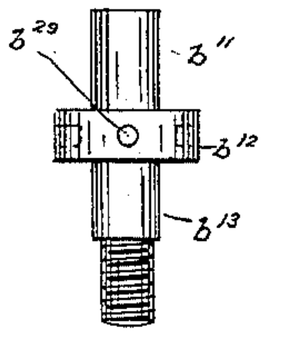

Fig. 10

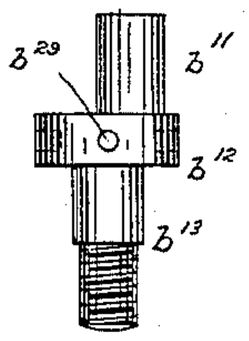

Fig. 11

WITNESSES.
Edward N. Burke
C. N. Childs

INVENTOR.
William P. Canning.

UNITED STATES PATENT OFFICE.

WILLIAM P. CANNING, OF LOWELL, MASSACHUSETTS, ASSIGNOR TO THE LOWELL MACHINE SHOP, OF SAME PLACE.

TRAVELING-FLAT CARDING-ENGINE.

SPECIFICATION forming part of Letters Patent No. 453,060, dated May 26, 1891.

Application filed July 31, 1890. Serial No. 360,585. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. CANNING, a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Traveling-Flat Carding-Engines, of which the following is a specification.

In certain machines of the class known as "traveling-flat carding-engines" brackets are used at both ends of the chain of flats and on both sides of the machine to support the wheels or rollers which carry the chain of flats, and about which wheels or rollers that chain reverses the direction of its motion, these brackets also supporting the studs or stud-bolts by which the ends of the flexible bends on which the end portions of the flats travel are connected to the brackets. It is customary to enable the position of the ends of the flexible bends to be changed relatively to the periphery of the main cylinder by providing means for enabling the brackets to be moved toward and from the axis of the main cylinder. In effecting this adjustment of the brackets, however, the wheels or rollers aforesaid move in and out to the same extent as the ends of the flexible bends, as will be understood from the fact that the wheels or rollers are carried by the said brackets, and consequently there is no change in the distance between the upper surface of the flexible bend and the nearest point of the circumference of the neighboring wheel or roller. Sometimes it is necessary to be able to make the change in this distance apart from or in addition to the change in the position of the bracket, and so far as I am aware this has been done heretofore only by making an alteration of the shape of one or more parts, as by filing out the upper or lower surface of the hole in the bracket through which the stud or stud-bolt passes and then moving the stud or stud-bolt in that hole.

The objects of my invention are to make it practicable to vary this distance without altering the shape of any of the parts and with ease and convenience, and to make it certain that after this distance has once been altered it will not be changed by the jar of the machinery or by the force applied to the stud or stud-bolt through the flexible bend or through the bracket, as it is liable to be in the case where the hole has been enlarged by filing in the manner noted. To this end I make the position of the end of the flexible bend adjustable with respect to the bracket aforesaid and to the wheel or roller carried thereby through the combination, with the said flexible bend and the said bracket, of a stud or stud-bolt which engages with the end of the flexible bend and with the bracket, substantially as heretofore, but which stud or stud-bolt is formed or provided with an eccentric portion, whereby when the said stud or stud-bolt is turned upon its axis a part of it moves into a new position with respect to the bracket and carries the flexible bend with it.

My invention admits of being embodied in a variety of forms differing from one another in certain respects, but all embodying the gist of my invention, which is a stud or stud-bolt engaging with the end of the flexible bend and with the bracket which carries the wheel or roller around which passes the chain of flats, and about which wheel or roller that chain reverses the direction of its motion, the said stud or stud-bolt being provided or formed with an eccentric portion, and thereby adapted, when it is turned upon its axis, to provide for a part of it being moved into a new position with respect to the bracket, and thereby to effect an adjustment of the position of the end of the flexible bend with relation to the nearest point of the circumference of the neighboring chain-supporting wheel or roller carried by the bracket.

In the accompanying drawings, Figure 1 is a view in side elevation of portions of certain parts of a traveling-flat carding-engine and shows one embodiment of my invention. Fig. 2 is a view of the same parts in vertical transverse section, the stud or stud-bolt and its binding-nut being shown in elevation. Figs. 3, 4, and 5 are views showing one form of stud or stud-bolt employed by me. Figs. 6, 7, and 8 are views showing the form of stud-bolt ordinarily employed. Figs. 9, 10, and 11 are views representing a slightly-modified stud or stud-bolt which I may adopt. Figs. 12 and 13 are views illustrative of a modification of my invention, Fig. 12 being a view in side

elevation and Fig. 13 being a view partly in vertical transverse section. Figs. 14 and 15 are views showing separately the form of stud or stud-bolt shown applied in Figs. 12 and 13.

In the drawings, reference being had in particular to Figs. 1 and 2 thereof, *w* is one of the wheels or rollers which, as hereinbefore indicated, are placed on both sides of the machine and at both ends of the chain of flats and serve to carry the chain of flats, and about which wheels or rollers that chain reverses the direction of its motion.

b is one of the flexible bends, only one end thereof being shown, and b^6 is the bracket supporting the wheel or roller *w* shown.

In practice the stud or stud-bolt which is passed through openings in the bracket and the adjacent end of the flexible bend usually is formed, as represented in Figs. 6, 7, and 8, with two cylindrical parts b^{21} and b^{23} and a cylindrical shoulder b^{22}, all having their axes in the same straight line, the part b^{21} entering an opening in the flexible bend *b* and the part b^{23} an opening in the bracket b^6, while the shoulder b^{22} comes between the flexible bend and bracket. The end of part b^{23} of the stud is threaded, as shown, so that by placing a binding-nut b^{24} on the said threaded end and turning it up against the side of the bracket b^6 opposite to that side thereof against which the shoulder b^{22} comes the stud-bolt is secured to the bracket. The exterior surface of shoulder b^{22} is intended to be engaged by a suitable tool—as, for instance, gas-tongs—and be held thereby from rotation as the nut b^{24} is turned up.

For the purpose hereinbefore stated—namely, that of varying the distance between the surface of the flexible bend and the nearest point on the periphery of the adjacent wheel or roller—I form one of the parts of the stud-bolt which engage the openings in the bracket and flexible bend so that its axis shall occupy an eccentric position with relation to the axis of the other, and so that when the stud-bolt is turned upon its axis a part of it moves into a new position with respect to the bracket and carries the flexible bend with it. In Figs. 1, 2, 3, 4, and 5 the portion b^{11} of the stud-bolt which enters the opening in the end of the flexible bend is disposed eccentrically with reference to the axis of the shoulder b^{12} and of the portion b^{13}, which passes through the opening in the bracket. The portion b^{13} of the stud-bolt has a screw-threaded end for the reception of the binding-nut b^{14}, and the stud-bolt thereby is adapted for being held to the bracket, the latter occupying a position between the shoulder b^{12} and the nut. In this case the adjustment of the position of the end of the flexible bend is effected by turning the stud-bolt within the opening therefor formed in the bracket. Customarily a slot is formed either in the end of the flexible bend or in the bracket b^6 to permit of endwise movement of the end of the flexible bend in the direction of the length of the flexible bend. In Figs. 1 and 2, wherein the stud-bolt is bound to the bracket by a binding-nut b^{14}, the slot is shown formed in the end of the flexible bend. In Fig. 12, wherein the stud-bolt is bound to the end of the flexible bend, the slot is shown formed in the bracket. In the former case the slotted end of the bend slides over the inner end of the stud-bolt. In the latter case the stud-bolt slides in the slot in the bracket.

In Figs. 1, 2, 3, 4, and 5 I have shown the shoulder b^{12} as made polygonal, in order to provide for the convenient application of a tool to hold the stud-bolt from turning while the binding-nut b^{14} is being turned up in its place, or to partially rotate the stud-bolt, and thus change the position of the eccentric portion b^{11} around the axis of the other portion of the stud-bolt, for the purpose of effecting an adjustment of the end of the flexible bend. Instead of forming the shoulder b^{12} polygonal, I may make it cylindrical, as in Figs. 9, 10, and 11, and provide it with holes b^{29} for the reception of the end of a tool by which the stud-bolt is to be held from rotation or is to be rotated, as desired.

In Figs. 1 and 2 the stud-bolt is clamped to the bracket and its free end enters the opening in the end of the flexible bend. In Figs. 12 and 13 the stud-bolt is clamped to the flexible bend and its free end enters the opening in the bracket. As shown in these figures and also in Figs. 14 and 15, the shoulder b^{12} is formed at one end of the stud-bolt, and the portion b^{13}, with the axis of which the shoulder is concentric, is threaded for the reception of a nut. In Fig. 13 the portion b^{13} is shown passed through the opening in the flexible bend, and the shoulder b^{12} is shown seated against one side of the said bend, the said shoulder being by preference received in a recess formed in the side of the bend. The binding-nut b^{14} is applied to the threaded end of portion b^{13} and turned up against the opposite side of the bend. The portion b^{11} enters the opening in the bracket, and, if desired, may be threaded, as shown, and fitted with a nut b^{16} and washer b^{17} on the side of the bracket opposite to that on which the flexible bend is situated. In this construction, as a means of holding the stud-bolt from rotation while the nut b^{14} is being turned up, or of rotating the stud-bolt for the purpose of effecting an adjustment, I have shown a slot in the end of the stud-bolt for the reception of the end of a screw-driver. The nut b^{14} should be loosened before the stud-bolt is turned, and tightened afterward. When the stud-bolt is thus turned, the distance from the upper surface of the flexible bend to the nearest point of the circumference of the neighboring guide wheel or roller will be changed and the object for which the eccentric stud-bolt is provided will be accomplished. The shoulder b^{12}, preferably, is formed integral with the stud-bolt.

I claim as my invention—

The combination, with a roller-supporting bracket and a flexible bend, of a stud-bolt provided with a shoulder and with portions to enter the bracket and bend, respectively, one of the said portions being disposed eccentrically and serving when the stud or stud-bolt is rotated as a means of changing the distance from the upper surface of the flexible bend to the nearest point of the circumference of the roller, and a binding-nut, substantially as described.

WM. P. CANNING.

Witnesses:
FRED WOODIES,
CHANNING WHITAKER.