(No Model.) 3 Sheets—Sheet 1.

J. E. PLATT & W. H. RICHARDSON.

CARDING ENGINE.

No. 454,986. Patented June 30, 1891.

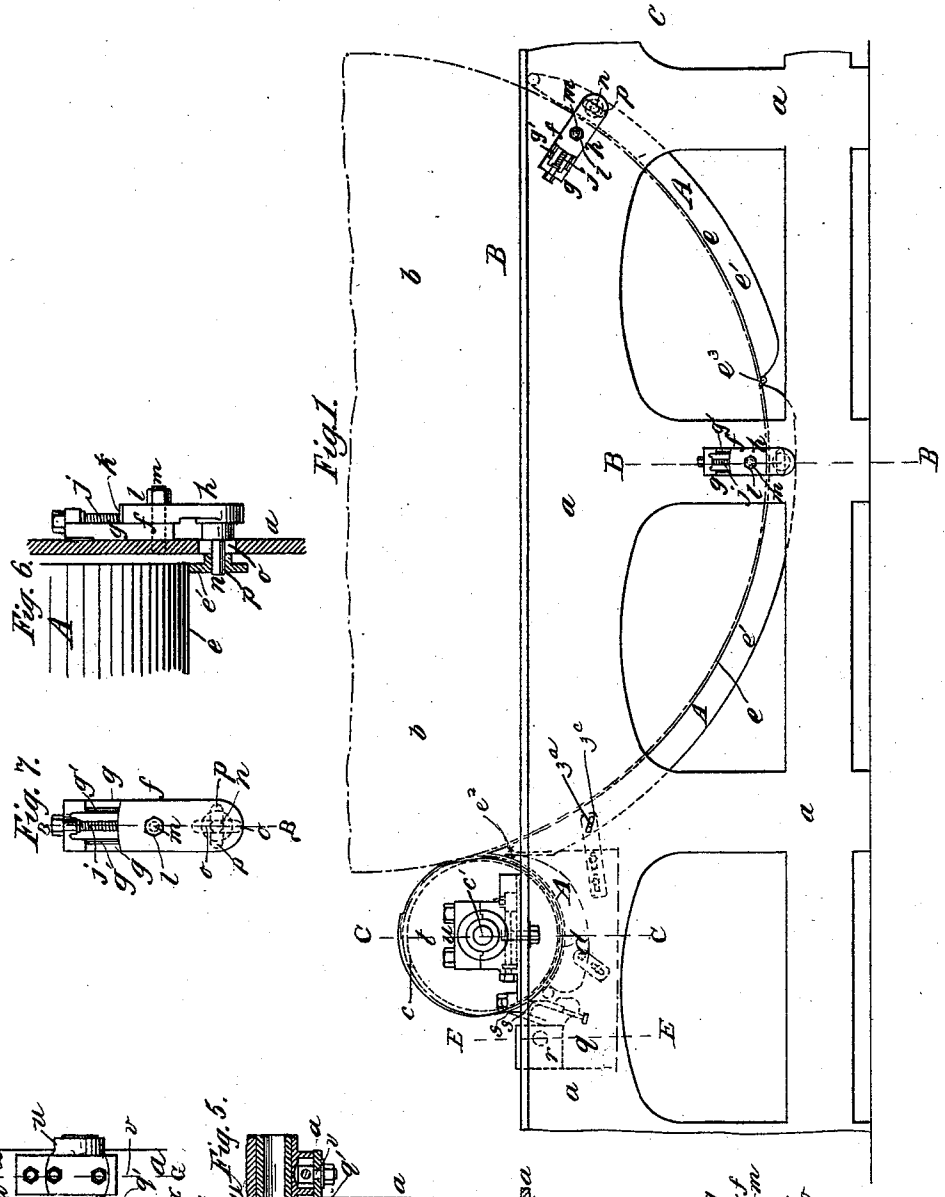

Fig. 1.

Fig. 6.

Fig. 7.

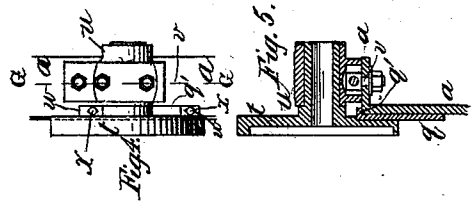

Fig. 4. Fig. 5.

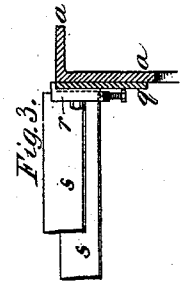

Fig. 3.

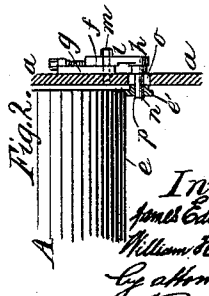

Fig. 2.

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(No Model.) 3 Sheets—Sheet 2.

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CARDING ENGINE.

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Fig. 2.

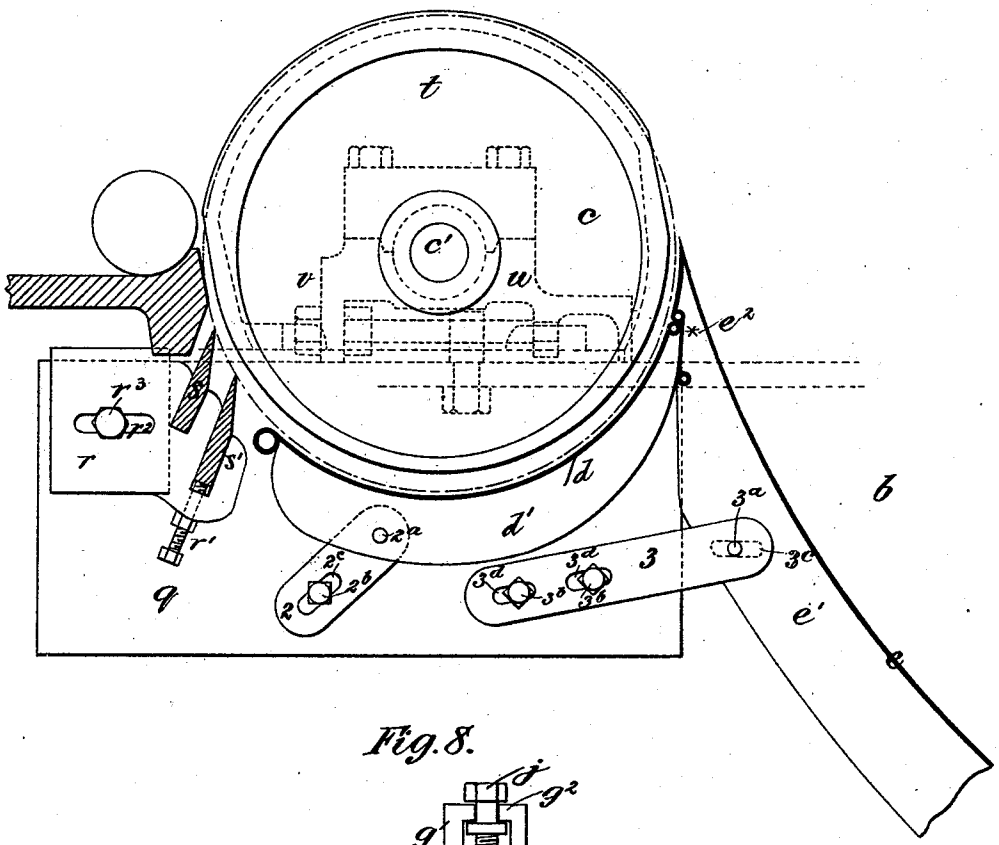
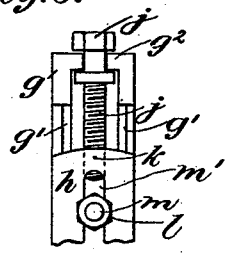


Fig. 8.



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(No Model.) 3 Sheets—Sheet 3.

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CARDING ENGINE.

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Fig. 11.

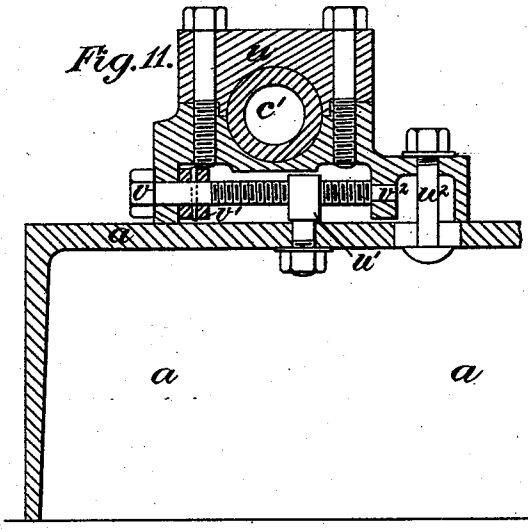


Fig. 9.

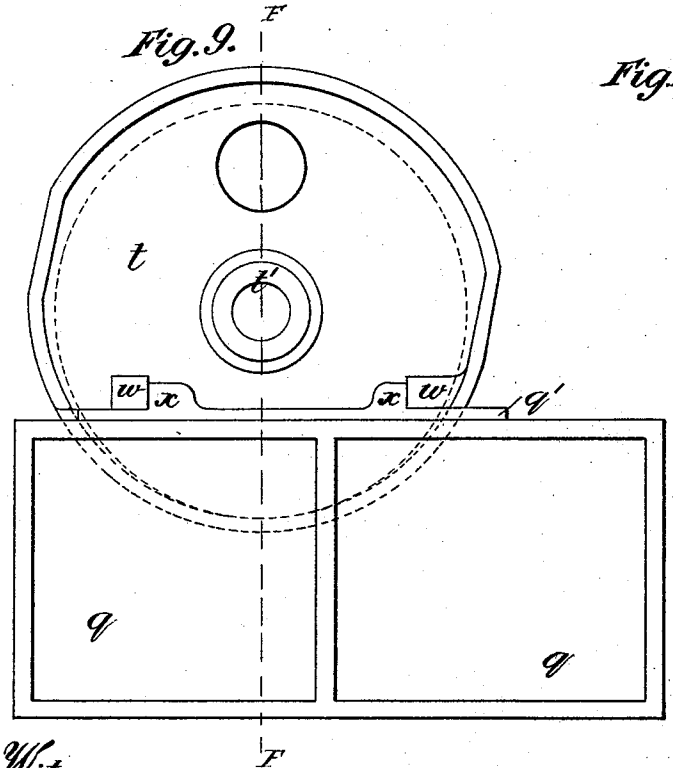
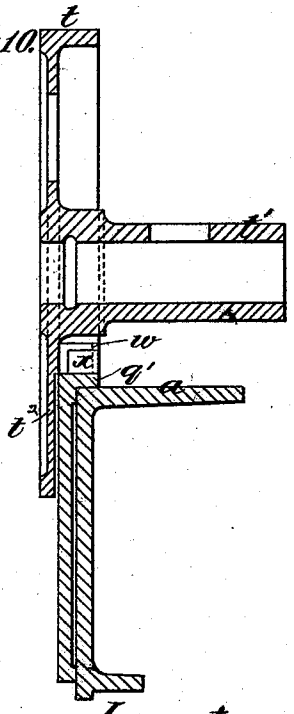


Fig. 10.



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UNITED STATES PATENT OFFICE.

JAMES EDWARD PLATT AND WILLIAM HALL RICHARDSON, OF OLDHAM, ENGLAND.

CARDING-ENGINE.

SPECIFICATION forming part of Letters Patent No. 454,986, dated June 30, 1891.

Application filed March 12, 1888. Serial No. 266,958. (No model.) Patented in England January 31, 1888, No. 1,432.

To all whom it may concern:

Be it known that we, JAMES EDWARD PLATT, engineer, of Hartford Works, Oldham, in the county of Lancaster, England, and WILLIAM HALL RICHARDSON, engineer, of Bank View, Derker, Oldham, in the county of Lancaster, England, have invented certain new and useful Improvements in Carding-Engines, the same to be used in conjunction with the casings or casing placed underneath certain parts of carding-engines used for carding cotton and other fibrous materials, of which the following is a specification, and for which we have obtained Letters Patent of Great Britain, No. 1,432, dated January 31, 1888.

Our invention relates to the casings placed underneath the cylinder and taker-in roller and to the casing placed underneath the cylinder only of carding-engines used for carding cotton and other fibrous materials; and our invention consists in arrangements by means of which such casings may, in the first case, be adjusted relatively to the cylinder and taker-in roller, and in the second case to the cylinder only, more readily and with greater accuracy than heretofore.

Our invention also consists in arrangements for carrying the taker-in roller-knives, so that when once adjusted they remain in correct working position in relation to the taker-in roller, although such taker-in roller may be moved in order to be adjusted nearer to or farther from the cylinder.

The drawings hereunto annexed show a method of carrying our invention into effect.

Figure 1 is a side view showing so much of a carding-engine as is requisite to illustrate our invention, and Figs. 2 and 3 are views showing portions detached and in a position at right angles to that in which they are shown in Fig. 1. Fig. 2 shows a section through the line B C. It also shows a side view of the bracket *f*, and how it supports the parts *e'* of the casing A. Fig. 3 shows a section through the line E E and shows how the plate *q* carries the bracket *r*. Fig. 4 is a plan showing the pedestal *u*, the shroud *t*, and part of the plate or bracket *q*; and Fig. 5 is a section through line C C, showing the pedestal *u*, shroud *t*, and the plate or bracket *q*. Fig. 6 is a section and side view through the line B C (see Fig. 1) upon a larger scale; and Fig. 7, a front view, also upon a larger scale of the bracket *f* shown in Fig. 1, and which is used for adjusting the part *e* of the casing A. Fig. 8 shows the screw *j* of the bracket *f* enlarged. Fig. 9 shows the bracket *q* and how it is secured to the shroud *t*. Fig. 10 is a section through the line F F of Fig. 9. Fig. 11 is a view, partly in section, of the pedestal *u* through the line G G of Fig. 4, and illustrates the devices for adjusting the pedestal *u*. Fig. 12 is an enlarged view of the taker-in roller *c* and shows the plate *q*, brackets *r*, 2, and 3, and portions of the under casing A.

At *a*, Fig. 1, is one of the side framings of a carding-engine, which supports one end of the main cylinder *b* and the taker-in roller *c*. Beneath the taker-in roller *c* and the main cylinder *b* is the casing A, provided, as usual, with bars or grids. One portion *d* of the casing A is situate beneath the taker-in roller *c* and is made of a segment of a circle of somewhat greater diameter than that of the taker-in roller *c*. The other portion *e* of the casing A is situate beneath the main cylinder *b*, and is also made of a segment of a circle of somewhat greater diameter than that of the main cylinder *b*. The part *d*, Fig. 12, of the casing A, situate beneath the taker-in roller *c*, is formed with a flange *d'*, which has a round hole in it to receive the supporting-stud 2^a, secured to the adjustable bracket 2. The bracket 2 is also provided with a slot 2^c, through which passes the screw 2^b, by which it is secured to the plate or bracket *q*, and the part *e* of the casing A, situate beneath the main cylinder *b*, is formed with a flange *e'*, which has circular slots *p*, corresponding to the circle of the flange *e'*, (see Figs. 1 and 7,) cut into it to receive the supporting-studs *n*. The part *e* of the casing A, which is nearest the taker-in roller *c*, is supported by the stud 3^a, passing through a hole of the same diameter as the stud 3^a, formed in the flange *e'*. The stud 3^a is secured to the adjustable bracket 3, which is provided with slots 3^d, through which pass screws 3^b, by which it is secured to the plate or bracket *q*. The stud 3^a, after passing through the flange *e'*, passes through a horizontal slot 3^c, formed in the side frame *a*. This

slot, while permitting of the horizontal adjustment of the stud 3^a, prevents any movement in a vertical direction.

u, Fig. 11, is an ordinary adjustable pedestal mounted on the side frame a, which carries the end c' of the taker-in roller c. u', Fig. 11, is a stud secured by a nut to the side frame a. The end of this stud u' is tapped to receive an adjusting-screw v. The screw v passes through the lower part of the pedestal u and is connected thereto by means of the collar v', fastened by a pin passing through the collar and the screw v. The bolt u^2, passing through a slot in the side frame a, secures the pedestal u to the side frame a. When it is necessary to set or adjust the pedestal u, the bolt u^2 is slackened and the screw v turned either to the right or left, according to the direction in which the pedestal is required to be moved. When the necessary adjustment has been made, the pedestal u is secured to the side frame a by the bolt u^2.

t, Figs. 9 and 10, is a shroud which covers the end of the taker-in roller c.

q, Figs. 9, 10, and 12, is a plate or bracket capable of being slid on the side frame a.

s and s', Fig. 12, are knives ordinarily employed in conjunction with taker-in rollers.

r is a bracket which carries the knives s s', and is provided with a setting-screw r' for adjusting the height of the lower knife s'. The bracket r is secured to the plate or bracket q by a screw r^3 in a slot r^2, which permits of its horizontal adjustment in relation to the bracket q.

f, Figs. 1, 2, 6, 7, and 8, is an adjustable bracket for adjusting the part e of the casing A, and is secured to the side framing a by means of a threaded stud m. The portion d of the casing A and the portion e, as shown in Figs. 1 and 12, are formed in separate pieces; but a shoulder is formed on the exterior of the part e opposite the star * e^2, (see Fig. 12,) to rest upon the adjacent end of the part d for the support of the said part e, so that when the brackets 2 3 are secured to the plate or bracket q the said parts d and e are both supported by the said bracket q, and when the said bracket is adjusted the said parts will move together just as though they were made in one piece. The part d is hung at its rear end upon pins or projections extending from the bracket q. Sometimes for convenience of carriage we make the part e in two pieces, which are hinged together at the part marked e^3 and shown in Fig. 1; or the parts d and e may be formed in one piece or be fastened together so as to constitute one piece. The portion d of the casing A and that portion e of the casing A which is situated nearest to the taker-in roller c are secured to the plate or bracket q in the same manner, whether the casing A is formed in one, two, or three pieces. By means of the slot 3^c those parts of the casing A adjacent to the star * e^2 are prevented from being set too high and so coming in contact with the wire of the cylinder b and taker-in roller c.

The casing A is supported near its front end by the plates or brackets 2 and 3, Fig. 12, secured to the bracket q, and farther to the rear by adjustable brackets f. One of such brackets f is shown in the detached views, Figs. 6 and 7 and partly in Fig. 8. Each of the brackets f is provided with a foundation part g, which is fixed to the side frame a by the threaded stud m. Mounted upon the foundation part g is a sliding part h, provided with a slot m', through which the end of the stud m passes, the slot m' permitting the movement of the part h on the foundation part g. The part h carries the stud n, which, after passing through the opening o in the side frame a, fits into the slot p, formed in the flange e', and by which the part e of the casing A is supported and adjusted.

Upon the foundation part g we form ribs g', which ribs g' pass into grooves formed in the sliding part h. The ribs g' act as guides, which only permit the sliding part h to be moved lengthwise upon the foundation part g. The sliding part h is drilled and tapped at k to receive an adjusting-screw j (see Fig. 8) of a well-known type, the head of which is formed with an annular groove to receive a forked lug g^2, projecting from the foundation part g, and while allowing the screw j to be turned round prevents it from moving lengthwise. By turning the screw j in one direction or the other the sliding part h will be moved upon the foundation part g, and the part e of the casing A will be moved nearer to or farther from the card-surface of the cylinder b. When the sliding part h has been adjusted into the required position by means of the screw j, it must be secured therein by means of a nut l, screwing upon the stud m. Instead of the brackets f being secured to the outside of the side frame a, such brackets may be secured to the inside of the side frame a, and in such cases instead of each of the studs n passing through an opening o in the side frame a, such stud n will pass at once into one of the slots p, formed in one of the side flanges e' of the portion e of the casing A, situate beneath the main cylinder b.

We prefer the above construction of the bracket f; but any kind of adjustable bracket may be used instead, so long as the bracket permits of a circumferential movement of the part e of the casing A, which will be hereinafter described.

q, Figs. 9 and 10, is a plate or bracket having at its upper edge a projecting flange q', by which it is supported upon the side frame a. The plate or bracket q is held against the side frame a by the lower part t^2 of the shroud t.

t, Figs. 9 and 10, is a shroud for covering the end of the taker-in roller c. The boss t' of the shroud t passes into the pedestal u and forms a bearing for one end of the taker-in

roller *c*, which passes through it. The cap of the pedestal *u*, Figs. 4 and 5, when screwed down on the boss of the shroud *t* secures the shroud in its proper position.

Upon the shroud *t* we form two projecting parts or lugs *w*, Figs. 9 and 10. Upon the plate or bracket *q* we form lugs *x*, which fit between the lugs *w* on the shroud *t*. By this means the plate or bracket *q* is connected to the shroud *t*, so that when the pedestal *u* and the shroud *t* are moved nearer to or farther from the cylinder *b* the plate or bracket *q* will also be moved with them. The plate or bracket *q* is kept in position against the side frame *a* by the lower part t^2 of the shroud *t* being set close up to or nearly close up to the plate or bracket *q*, as shown in section in Fig. 10. Instead of the projecting parts or lugs *w* being formed upon the shroud *t*, such projecting parts or lugs *w* may be formed upon the pedestal *u* and fit between the corresponding lugs or projections *x*, formed on the plate *q*. The knife-bracket *r*, Figs. 3 and 12, which carries or supports one end of each of the knives *s s'*, ordinarily employed in conjunction with taker-in rollers, is provided with a flange which rests on the top of the bracket *q*, and is secured to the plate or bracket *q* by the screw r^3, which passes through the slot r^2. (See Fig. 12.)

For convenience of description we have hitherto only referred to parts situate at one side of the carding-engine; but it will be readily understood that where necessary like parts are employed on each side of the carding-engine.

The taker-in roller *c* having been adjusted into the desired position relatively to the main cylinder *b*, we first adjust the part *e* of the casing A which is nearest to the taker-in roller *c* by means of the bracket 3, which carries the stud 3^a, and which supports this part and especially adjusts the position of that part of the casing A which we have indicated by the star * e^2. We then, by means of the brackets *f*, which carry the studs *n*, that enter into the slots *p*, formed in the flange *e'* of the casing A, adjust the other portions of the part *e*, so that the entire portion *e* of the casing A will be concentric or nearly concentric with the card-surface of the main cylinder *b*. We then adjust the portion *d* of the casing A beneath the taker-in roller *c* by means of the supporting-bracket 2, which by means of the stud 2^a regulates the position of the part *d*, so that such portion *d* of the casing A will be concentric or nearly concentric with the card-surface of the taker-in roller *c*. The bracket 2 is then securely fastened to the plate or bracket *q* by the screw 2^b or other suitable means passing through the slot 2^c, formed in the plates 2. The casing A will then be in proper working position. When it becomes necessary, from the wear of the card-surfaces of the main cylinder *b* and taker-in roller *c*, to readjust the position of the taker-in roller *c* relatively to the main cylinder *b*, the taker-in roller *c* is again adjusted into the desired position by means of the screw *v* for adjusting the pedestal *u*, as previously explained. The movement of the pedestal *u* necessary for the adjustment of the taker-in roller *c* will cause the plate or bracket *q*, with the part *d* of the casing A, to be moved along with the pedestal. This movement of the plate or bracket *q* by means of the plate 3 and stud 3^a will cause that portion *e* of the casing A which is situated nearest the taker-in roller *c* to be moved nearer to the cylinder *b*, and will cause the portion *e* of the casing A, which is supported by the brackets *f*, to be slightly moved circumferentially around the main cylinder *b*, the slots *p*, formed through *e'*, the side flanges acting as guides and so permitting it to be moved; otherwise, if it were not for the movement permitted by the slots *p*, the part *e* would buckle or bulge. When desirable, the portion *e* beneath the main cylinder *b* may be readjusted relatively to the card-surface of the main cylinder *b* by means of the brackets *f* and 3, and the position of the part *d* may also be adjusted relatively to the card-surface of the taker-in roller *c* by means of the brackets 2. The portion *e* beneath the main cylinder *b* and the portion *d* beneath the taker-in roller *c* are prevented from moving sidewise by the side frames *a a* of the carding-engine.

Instead of forming the slots *p*, as above described, in the side flanges *e'* and providing each of the brackets *f* with a stud *n*, we may in some cases provide the side flanges *e'* with studs, each of which passes into a slot formed in one of the brackets *f*.

We mount the adjustable knife-brackets *r* upon the plates or brackets *q*, as previously mentioned, and by means of the slot r^2 in the bracket *r* adjust the bracket *r* horizontally, so as to bring the knife *s* to its proper position. We then by means of the adjusting-screw *r'* adjust the knife *s'* to its proper position. Owing to their connection with the pedestal *u* by means of the plate or bracket *q* when once adjusted, the knives *s* and *s'* will remain in correct working positions in relation to the taker-in roller *c*, although such taker-in roller *c* may be moved in order to be adjusted nearer to or farther from the cylinder *b*.

In some cases we dispense with the use of the part *d* of the casing A, in which case our invention is applied solely to the adjustment of the part *e* of the casing A beneath the main cylinder *b*.

What we claim is—

1. The combination, with the main cylinder and taker-in roller of a carding-engine, of the parts *d* and *e* of the casing A, the pedestals *u* and screws *v*, the shrouds *t*, with the projections or lugs *w*, the plates or brackets *q*, with the lugs *x*, the knife-brackets *r*, the taker-in-roller knives *s s'*, the brackets 2, provided with the slots 2^c, the screws 2^b, and studs 2^a, the brackets 3, with the studs 3^a, the

screws 3^b, and slots 3^d, the side frames a, with the slots o and the horizontal slots 3^c to receive the studs 3^a, the part d of the casing being provided with the side flanges d', having round holes to receive the studs 2^a, the part e of the casing being provided with the side flanges e', having slots p and round holes to receive the studs 3^a, and the brackets f, provided with studs n, substantially as specified.

2. The combination, with the main cylinder and taker-in roller of a carding-engine, of the part e of the casing A, the pedestals u and screws v, the shrouds t, with the projections or lugs w, the plates or brackets q, with the lugs x, the knife-brackets r, the taker-in-roller knives $s\,s'$, the brackets 3, with the studs 3^a, the screws 3^b, and slots 3^d, the side frames a, with the slots o and the horizontal slots 3^c to receive the studs 3^a, the part e of the casing being provided with the side flanges e', having slots p and round holes to receive the studs 3^a, and the brackets f, provided with studs n, substantially as specified.

3. The combination, with the main cylinder and taker-in roller of a carding-engine, of the parts d and e of the casing A, the pedestals u and screws v, the shrouds t, with the projections or lugs w, the plates or brackets q, with the lugs x, the brackets 2, provided with the slot 2^c, the screws 2^b, and studs 2^a, the brackets 3, with the studs 3^a, the screws 3^b, and slots 3^d, the side frames a, with the slots o and the horizontal slots 3^c to receive the studs 3^a, the part d of the casing being provided with the side flanges d', having round holes to receive the studs 2^a, and the part e of the casing being provided with the side flanges e', having slots p and round holes to receive the studs 3^a, and the brackets f, provided with studs n, substantially as specified.

4. The combination, with the main cylinder and taker-in roller of a carding-engine, of the part e of the casing A, the pedestal u and screws v, the shrouds t, with the projections or lugs w, the plates or brackets q, with the lugs x, the brackets 3, with the studs 3^a, the screws 3^b, and slots 3^d, the side frames a, with the slots o and the horizontal slots 3^c to receive the studs 3^a, the part e of the casing being provided with the side flanges e', provided with slots p and round holes to receive the studs 3^a, and the brackets f, provided with studs n, substantially as specified.

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