

(Model.)

2 Sheets—Sheet 1.

J. E. PLATT & J. FIDLER.

C. L. STURTEVANT, Administrator of J. FIDLER, Deceased.

APPARATUS FOR GRINDING THE REVOLVING FLATS OF CARDING
ENGINES.

No. 510,611.

Patented Dec. 12, 1893.

FIG. 3.

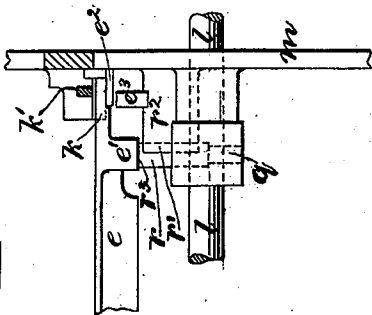


FIG. 4

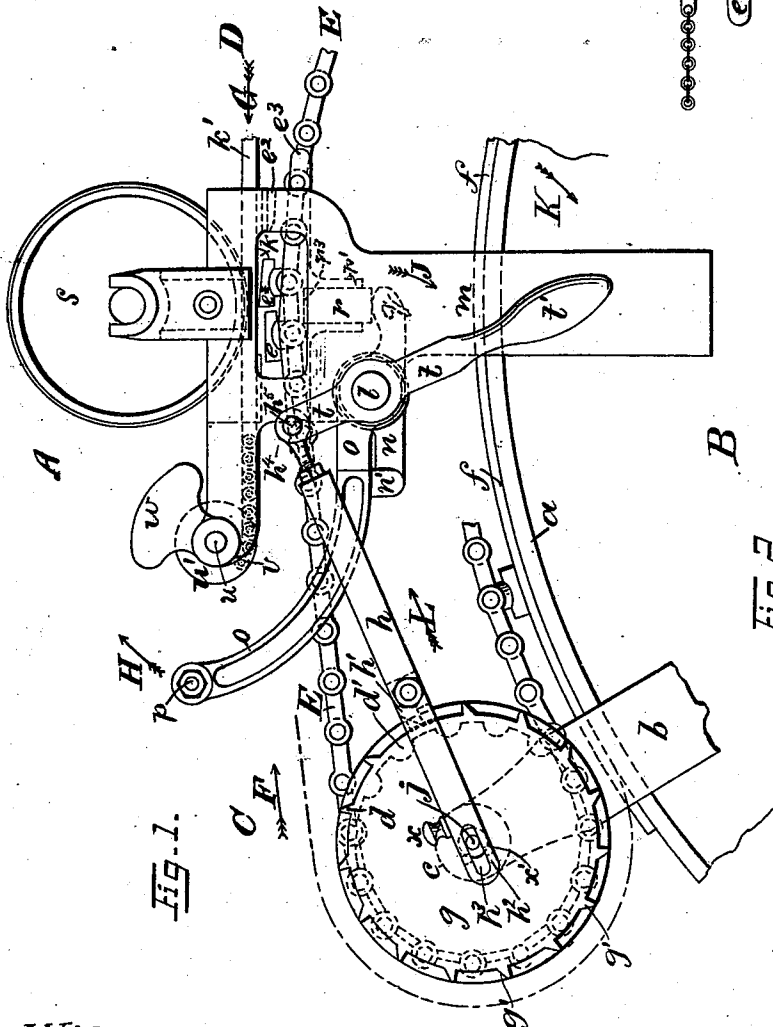
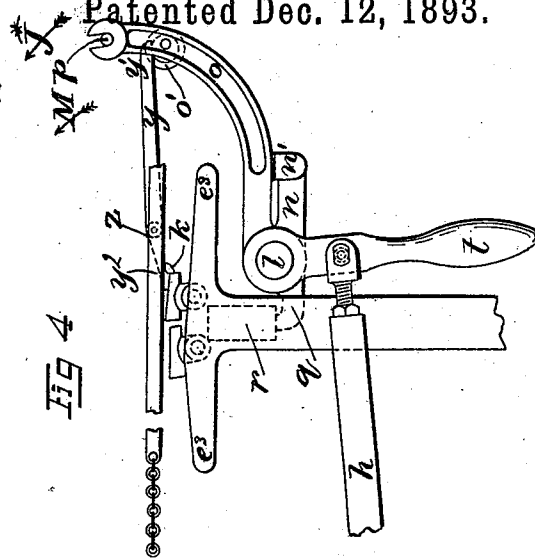
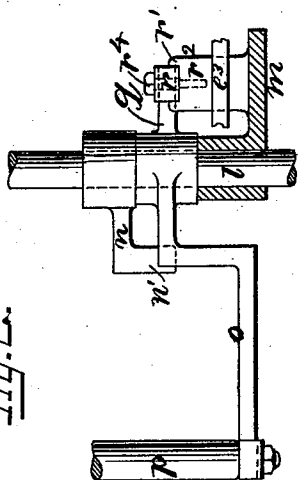


FIG. 2.



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(Model.)

2 Sheets—Sheet 2.

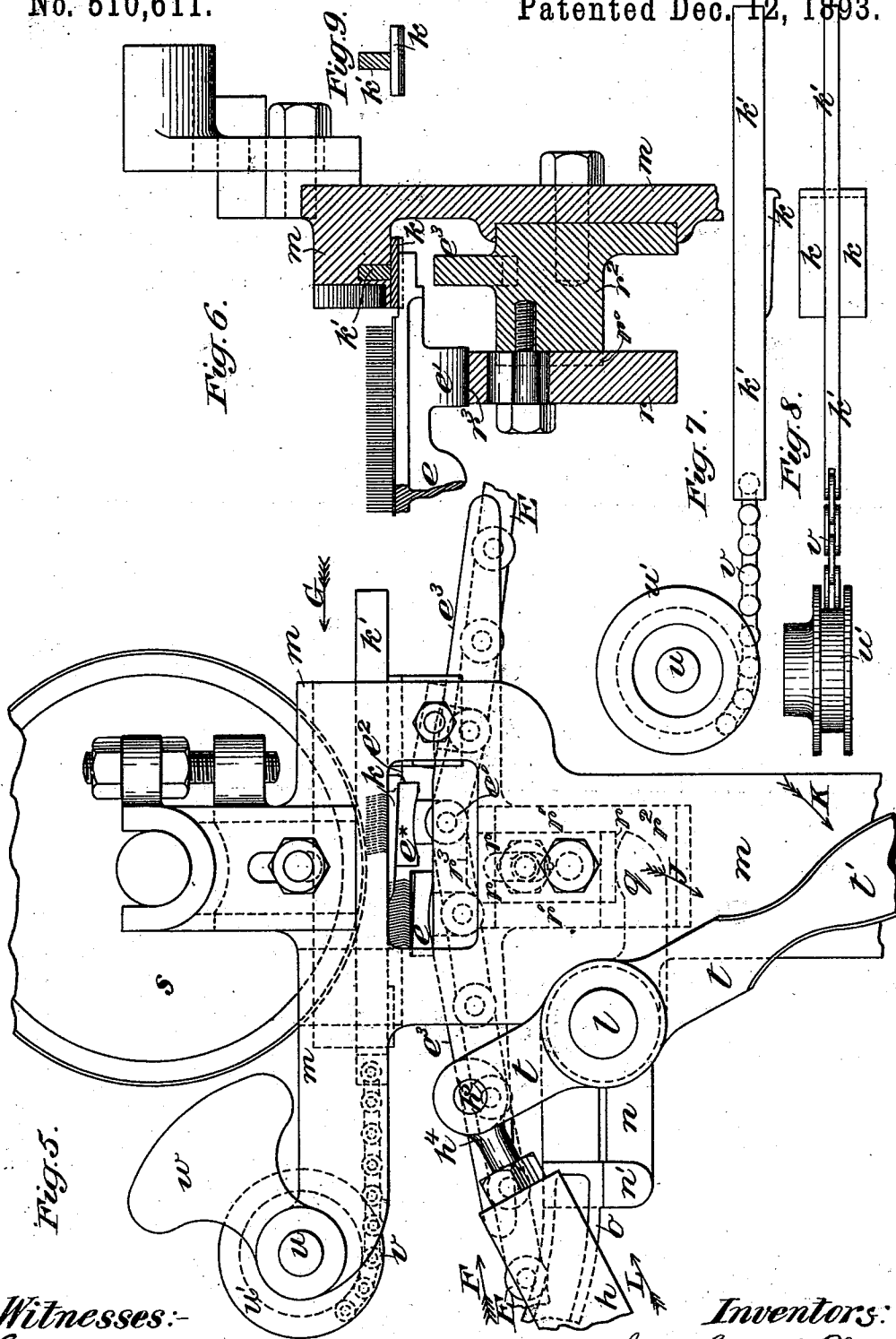
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UNITED STATES PATENT OFFICE.

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APPARATUS FOR GRINDING THE REVOLVING FLATS OF CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 510,611, dated December 12, 1893.

Application filed January 2, 1891. Serial No. 376,493. (Model.) Patented in England August 15, 1889, No. 12,886.

To all whom it may concern:

Be it known that we, JAMES EDWARD PLATT, engineer, and JAMES FIDLER, machinist, of Hartford Works, Oldham, in the county of Lancaster, England, have invented certain new and useful Improvements in Apparatus for Grinding the Revolving Flats Employed in Carding-Engines, (for which we have obtained Letters Patent of the United Kingdom of Great Britain and Ireland, No. 12,886, dated August 15, 1889,) of which the following is a specification.

Our improvements relate to arrangements of apparatus for grinding the "flats" of "revolving flat carding engines" for which British Letters Patent were granted to Thomas Clegg and Thomas Lucas, dated the 19th day of February, 1874, No. 623.

In carrying out our invention we employ a cam or cams secured to or receiving rotary motion from the "notch block shaft" from which the "flats" receive their motion and by which they are moved over the surface of the guide rails or flexible bends of "revolving flat carding engines." The said cam or cams actuates or actuate a lever or levers which acts or act upon sliding pieces which carry or press the "flats" one after another against the faces of the sliding blocks (*k*) described in the specification of the Letters Patent aforesaid. The said cam or cams will at the proper time by means of the lever or levers and sliding pieces aforesaid cause the "flat" which is to be ground to be brought into contact with the said sliding blocks (*k*) so that the relative positions of the wire on the flat and the surface of the grinding roller will be regulated by the sliding blocks (*k*) while the "wire" of the "flat" is being ground. The cam or cams before mentioned will at the proper time release or remove the sliding pieces which press the "flat" against the sliding blocks (*k*) so that the said "flat" will be disengaged from the said sliding blocks in order that they may be returned to their normal positions by weights which always tend to pull them back to be ready to receive the next "flat" as it moves forward into position

for being ground. In some cases we cause the levers before mentioned to act directly on the flat without the intervention of the sliding pieces before referred to.

We provide arrangements by means of which the apparatus can be put out of operation without being removed from the carding engine.

A means of carrying our invention into effect is shown in the accompanying drawings which show so much of a carding-engine as is requisite to illustrate our invention.

Figure 1 is a side elevation. Fig. 2 is a plan of certain parts seen in the direction from A to B of Fig. 1. Fig. 3 is a side elevation of certain of the parts shown in Fig. 1 as seen in the direction from C to D of Fig. 1. Fig. 4 is a side elevation of arrangements employed to insure the disengagement of the flats from the sliding blocks *k* after such flats have passed beneath the grinding roller. Fig. 5 is a side elevation on a larger scale of certain parts shown in Fig. 1. Fig. 6 represents a transverse section corresponding with Fig. 4, of parts of the devices for supporting the flats during the grinding. Figs. 7 and 8 are respectively a side and a plan view of one of the sliding blocks, the bar to which it is attached and the devices for moving said bar. Fig. 9 represents a transverse section of said bar and an end view of the sliding block.

The same letters of reference are applied to corresponding parts throughout all the figures.

In the accompanying drawings we have shown, and in many cases in the description following we shall refer to, certain parts as though such parts were employed at one side only of the carding engine but we would have it understood that certain of the parts extend across the carding engine and that parts corresponding to certain other parts are employed at the other side of the carding engine.

To the bend *a* is secured a bracket *b* which supports so that it is free to be rotated there-in one end of the "notch block shaft" *c* upon which are mounted the notch blocks *d* from

which the chain E of flats *e* receives its motion and by which the flats *e* are moved over the surface of the guide rails or flexible bends *f* of the "revolving flat carding engine."

5 Secured upon one end of the "notch block shaft" *c* is a cam *g* upon the circumference of which are formed inclines *g'* the number of inclines *g'* being equal to the number of notches or recesses *d'* in each of the "notch blocks" *d*. The inclines *g'* act upon an incline *h'* secured to a bar *h*.

Through the end *h²* of the bar *h* is formed a slot *h³* which embraces a stud *j* projecting from the end of the "notch block shaft" *c* upon which stud *j* the slot *h³* may be slid. The bar *h* is jointed at its end *h⁴* by means of a stud *h⁵* to one end of a lever *t* mounted fast upon a shaft *l* carried by and capable of being turned in brackets *m* secured to or mounted upon the bends *a* of the carding engine. One end of the lever *t* is formed as a handle *t'*.

Fast upon the shaft *l* are arms *n* the ends *n'* of which at times act against the lower sides of levers *o* which are mounted loose upon the shaft *l*.

Secured to each of the levers *o* is one end of a rod *p* the opposite end of which is secured to the lever *o* corresponding to the said lever *o* and situate at the other side of the carding engine. The rod *p* acts as a weight tending to turn the levers *o* in the direction opposite to that indicated by the arrow H.

Formed upon or secured to the lever *o* is a finger *q* upon which rests the lower end of the sliding block *r* capable of being slid in guides *r'* formed in a part *r²* projecting from the bracket *m* secured to the bend *a*. When the flats *e* are at work they travel in the direction indicated by the arrow F. While each of the flats *e* is traveling over the sliding blocks *r* the part *e'* of such flat *e* will rest upon the end *r³* of the sliding block *r*.

Carried by the bracket *m* is the "grinding roller" *s*.

45 *k* is a sliding block secured upon a bar *k'* capable of being slid longitudinally in the bracket *m*. Carried by the bracket *m* is one end of a shaft *u* upon which is secured a boss *u'*. To the circumference of the boss *u'* is secured one end of a chain *v* secured at its other end to the bar *k'*. To the shaft *u* is secured a weight *w* which tends to turn the shaft *u* so as to draw the bar *k'* and the block *k* in the direction indicated by the arrow G. The cam *g* with its inclines *g'* will at the proper time by means of the incline *h'*, bar *h*, and lever *t* permit the rod *p* and lever *o* to act on the arms *n* and allow the weight of the rod *p* to turn the fingers *q* and by means of the sliding blocks *r* cause the flat *e* which is to be ground to be brought into contact with the sliding blocks *k* aforesaid so that the relative positions of the wire on the flat and the surface of the grinding roller while the wire of the flat is being ground will be regulated by the sliding blocks *k*.

According to the position in which the parts are shown in the drawings the leading flat *e** is shown as having just passed underneath the grinding roller. When the said flat *e** is in the said position one of the inclines *g'* of the cam *g* will by acting against the incline *h'* push forward the bar *h* thereby turning the lifting levers *n* and causing them to act upon the levers *o* so as to turn them in the direction indicated by the arrow H thereby causing the fingers *q* to be turned in the direction indicated by the arrow J and thereby allowing the sliding blocks *r* to descend and the flat supported by such sliding blocks *r* to be disengaged from the sliding blocks *k* so that the said "flat" will be disengaged from the sliding blocks *k* before mentioned in order that the sliding blocks *k* may be returned to their normal position, by means of the weight *w* in readiness to receive the next flat as it moves forward into position for being ground.

Occasionally when the joints of the "flat chains" are rather stiff the flat which is being lifted up to engage with the sliding block *k* lifts also the preceding flat which has already passed from the sliding block *k*. In order to prevent such lifting of the flat after it has passed from the sliding block *k* we in some cases form upon or secure to the bracket *m* a projecting part *e²* under which each flat has to pass after being ground by the grinding roller *s* and we thus cause each flat after being ground to be held down so that it will travel along the bracket *e³* by which the flats which are not being ground are supported.

Although the weight of the flat on the descent of the sliding blocks *r* is in practice found to be sufficient to release the flat from the sliding blocks *k*, we in some cases employ the arrangements shown in Fig. 4 by means of which arrangements we are enabled to "positively" insure the disengagement of the flat from the sliding block *k* after such flat has passed beneath the grinding roller *s*.

Upon each of the levers *o* we secure or form a projecting part *o'* which at times supports one end *y'* of a lever *y* carried by and capable of being turned upon a stud *z* secured to the bracket *m*.

When the flat has passed beneath the grinding roller *s* such flat will arrive beneath the ends *y²* of the levers *y*. When the levers *o* are moved in the direction indicated by the arrow J* in order to allow the descent of the sliding blocks *r* such levers *o* will by means of the projecting parts *o'* cause the levers *y* to be turned in the direction indicated by the arrow M and the ends *y²* of the levers *y* will arrive in contact with the flat and force it away from the sliding blocks *k*. The cams *g* thus cause each of the flats to become engaged with the sliding blocks *k* and to be disengaged therefrom.

In Fig. 4 the projecting part *o'* is shown as being in the form of an eccentric or cam mounted and capable of being secured in position upon a stud, in order that the action of

the lever *y* may be readily regulated to cause the flats to be disengaged from the sliding blocks *k* when the lever *o* is moved in the direction indicated by the arrow J*.

5 When the flats have been sufficiently ground or when it is desired to put the apparatus above described out of operation we transfer the pin *x* from the hole in the bar *h* in which it is shown as being placed into another hole
10 formed through the bar *h* and shown by dotted lines *x'*, the bar *h* being moved in the direction indicated by the arrow L by the handle *t'* being moved in the direction indicated by the arrow K in Figs. 1 and 5. The incline *h'*
15 will thus be moved out of the range of the inclines *g'* and the fingers *q* being turned in the direction indicated by the arrow H will allow the sliding blocks *r* to descend, thereby allowing the flats to pass beneath the grinding
20 roller *s* without being acted upon thereby.

It may be here mentioned that in Fig. 4 the bar *h* is represented as connected with the lever *t* below the shaft *l* instead of above the said shaft as shown in Figs. 1 and 5. This is
25 immaterial but the connection shown in Fig. 4 will require the handle of the lever to be moved in a direction the reverse of that shown in Figs. 1 and 5 to obtain the same movement of the bar *h*.

30 Having fully described our invention, what we claim, and desire to secure by Letters Patent, is—

1. In an apparatus for grinding the flats of revolving flat carding engines in which sliding
35 blocks such as (*k*) are employed the combination with such sliding blocks, of the cam *g*, bar *h*, lever *t*, shaft *l*, levers *o*, arms *n*, fingers *q* and sliding blocks *r* all constructed arranged employed and operating substantially as hereinbefore described for causing the flats which

are to be ground to be successively raised into and kept in contact and allowed to pass out of contact with the said sliding blocks (*k*).

2. In an apparatus for grinding the flats of revolving flat carding engines in which sliding
45 blocks such as (*k*) are employed the combination of parts consisting in the cam *g*, bar *h*, lever *t*, shaft *l*, levers *o* provided with parts *o'*, arms *n*, fingers *q*, sliding blocks *r* and levers *y* all constructed, arranged, employed
50 and operating substantially as hereinbefore described for causing the flats which are to be ground to be successively raised into and kept in contact with and disengaged from the sliding blocks (*k*).
55

3. In an apparatus for grinding the flats of carding engines in which sliding blocks such as (*k*) are employed, levers *y* arranged to act in conjunction with projections *o'* upon the levers *o* substantially as herein described and
50 for the purpose of disengaging the flats from the sliding blocks (*k*) after such flats have been ground.

4. In an apparatus for grinding the flats of revolving flat carding engines in which sliding
65 blocks such as (*k*) are employed the combination with such sliding blocks, of a cam *g* employed and operating substantially as hereinbefore described and for the purpose of bringing the flat which is to be ground into
70 position and connection with the said sliding blocks and for removing the said flat from the said blocks after it has been ground.

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