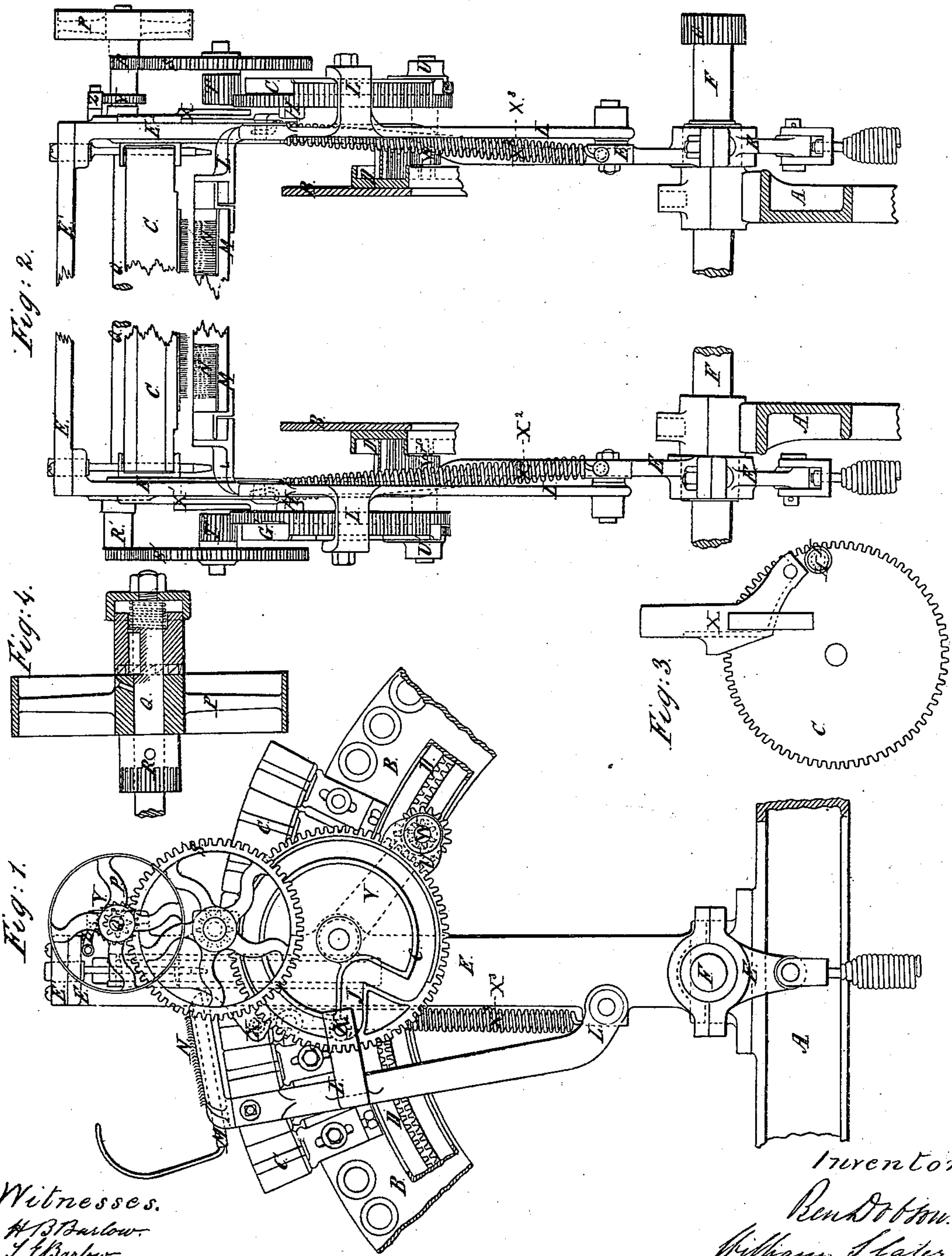


Dobson & Slater Cleaning Carding Engine.

N^o 94,089.

Patented Aug. 24, 1869.



Witnesses.
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BENJAMIN DOBSON AND WILLIAM SLATER, OF BOLTON, ENGLAND.

Letters Patent No. 94,089, dated August 24, 1869.

IMPROVEMENT IN LIFTING FLATS IN SELF-STRIPPING CARDING-ENGINES.

The Schedule referred to in these Letters Patent and making part of the same.

To all to whom it may concern:

Be it known that we, BENJAMIN DOBSON, of the firm of Messieurs Dobson and Barlow, machine-makers, and WILLIAM SLATER, manager, both of Bolton, in the county of Lancaster, in England, have invented certain new and useful "Improvements in Carding-Engines;" and we hereby declare the following to be a full, clear, and exact description thereof, reference being had to the annexed drawing, forming part of this specification; that is to say—

Our invention relates to the carding-engines for which Letters Patent were granted, in England, to George Wellman, on the 11th September, 1860, No. 2,190, and known as Wellman's patent carding-engines.

In those carding-engines, the top flats were raised and lowered by a cam or by a series of curves on the face of the lifting-wheels, acting on pins in the slides in the radial arms.

Now, our invention consists in dispensing with these cams or curves and pins, and lifting the top flats by a bowl on the lifting-wheel acting on a curved surface on the slides, which are drawn down by springs, as soon as the bowls have passed. By this means, the top flats are rapidly raised and lowered again into their proper working-place, and thereby better work is produced and time saved.

Another part of our invention consists in the application of a ratchet-wheel to the cross-driving shaft, and a catch to the radial arm, to prevent the said shaft from moving in the wrong direction.

Description of the Drawing.

Figure 1 is an elevation of part of the framing of a carding-engine and of our improvements;

Figure 2 is a section of the framing and side view of our improvements; and

Figures 3 and 4 are detached views of parts of our improvements.

The main framing of the carding-engine, A, carries the bends B, which support the series of "top flats" C, and to these bends are secured, one at each side of the engine, the double mangle-racks, or toothed segments D, for obtaining the desired to-and-fro travelling motion of the radial arms E, which carry the "flat"-raising and stripping mechanism, and the gearing for driving the same.

These radial arms are supported by and work round the pedestals, which carry the main cylinder-shaft F.

Near the upper ends of the radial arms are mounted the wheels G.

Each of these wheels has a small anti-friction bowl, H, working on studs I, which are secured to the wheels G.

These studs and bowls are used for the purpose of raising and lowering the slides X, seen best in fig. 3, which act upon the "top flats."

The wheels G have also attached, or cast to one face on the opposite side to the bowl H, an internal cam, J, in the grooves of which work the small anti-friction bowls K, carried by studs fixed in the levers L, these levers being jointed to the radial arms near to their fulcra.

At the upper end of the levers L, are secured the ends of the board M, to which is fastened the stripping-card N, which cleans the "top flats."

The upper ends of the two radial arms E are connected together by a cross-rail, E', which passes over the top of the card.

Upon each side of the carding-engine are similar cams, wheels, and studs, as before named, to which rotary motion is imparted by a small pulley, O, fixed on the end of the main cylinder-shaft F.

The pulley O drives, by means of a strap, the pulley P, which is fixed on the cross-shaft Q. This cross-shaft is supported at each end by the radial arms.

On the shaft Q are two pinions R R', which work into two carrier-wheels S S'.

These carrier-wheels work on studs secured to the radial arms, and have each of them a pinion, T T', fixed to them.

These pinions work into and drive the wheels G G'.

It is by these means that motion is transmitted from one side of the card to the other, so that both sets of gearing rotate together.

One portion of the periphery of each of the wheels G G' is provided with an extra segment of teeth, which gears into and imparts one rotation to the pinions U U', carried on the ends of the swing-arms V V', as best shown in fig. 1, which are jointed to studs on the radial arms E.

Each of the pinions U U' is provided with a lock-plate, which, by bearing upon the turned rims of the wheels G G', holds the radial arms stationary after each revolution of the pinions U U'.

A second pinion, W W', is fixed on the axis of each of the pinions U U', and these gear into the toothed segments D; hence, it follows that at each revolution of the pinions W, a forward motion will be imparted to the radial arms, which motion enables it to pass from one top card or "flat" to another.

At the upper end of each of the radial arms is a slot, in which the slides X work. These slides are curved on the under surface in such a manner that the bowls H first raise them, together with the top flat, to their full height. Then there is a slight dwell whilst the stripper M passes under the top flat. After this the slides, together with the top flat, lower a little, so as to bring the wire clothing of the top flat C in contact with the stripping-card N.

The internal cams J then act upon the levers L and withdraw the stripper M from underneath the top flat, bringing all the impurities along with it.

About the time that the stripper has withdrawn from underneath the top flat, the bowls H begin to leave the slides X X¹, on one side of each of which is a curved incline, which comes in contact with the bowls H as the bowls are carried round by the wheels G. Thus, by varying the shape of these curved inclines on the slides, the speed at which the "top flats" are let down again into their working-position, can be regulated.

To each of the slides X X¹ is fastened one end of a spiral spring, X³, the other end of which is secured to the radial arms.

The object of these springs is to draw down the slides as soon as the bowls H have passed their lower ends.

By these means, the top flats are more rapidly raised and lowered down again into their proper working-position, than has hitherto been done when using cams, or a series of curves on the face of the wheels G, for raising and lowering the "top flats," thus producing better work, because the cleaned wire of the top flat is brought into work with the main cylinder in less time than before.

Another part of our invention, shown in figs. 1 and 2, consists in the application of a ratchet-wheel, Y, which is secured to the shaft Q, and a catch, Z, which is jointed to the radial arm E.

The object of this ratchet-wheel and catch is to prevent the stripping-apparatus from moving in the wrong direction. When the cross-driving shaft Q is turning in the proper direction, the teeth of the ratchet-wheel slide past the catch and lift it up; but, if in case the shaft attempted to turn in the wrong direction, by reason of the driving-shaft of the stripping-apparatus being put on the wrong way, then the catch Z would fall into the teeth of the ratchet-wheel Y and arrest its motion.

A mechanical equivalent, for effecting the same object, is shown in fig. 4.

The pulley P has one-half of a catch-box with ratchet-teeth upon it, and runs loose upon the shaft, whilst another half of a catch-box, (having corresponding ratchet-teeth and turning with the shaft, but capable of sliding endwise on a key,) is held in gear with the first half by a light spring, when the shaft Q is turning in the proper direction.

But if in case the pulley P is turned in the wrong direction, then the ratchet-teeth of the two boxes would slide over each other, and arrest the motion of the stripping-apparatus.

Having now described the nature of our improvements, and the manner in which the same are or may be carried into effect, we desire to say that we do not claim any of those parts described and shown which are well known and in common use; but

What we do claim as our invention, and desire to secure by Letters Patent of the United States of America, is—

1. The mechanical combination and arrangement of the parts marked G, H, and I, the slides X, and the springs X³, for lifting and drawing down the top flats.

2. In combination with the above, the wheel Y and the catch Z, or their equivalents, to prevent the cross-driving shaft being driven in the wrong direction.

In testimony whereof, we have hereunto set our hands, before two subscribing witnesses, this 25th day of February, in the year of our Lord 1868.

BEN. DOBSON.

WILLIAM SLATER.

Witnesses:

H. B. BARLOW,

T. E. BARLOW.