R. Carsed.
Sheading.

No. 4,645. Patented Jul. 20, 1846.

Fig. 1.

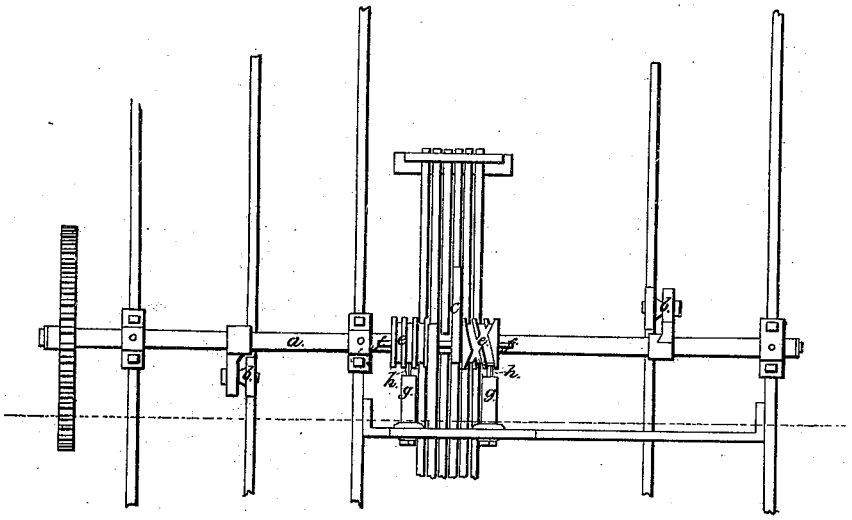

Fig. 2.

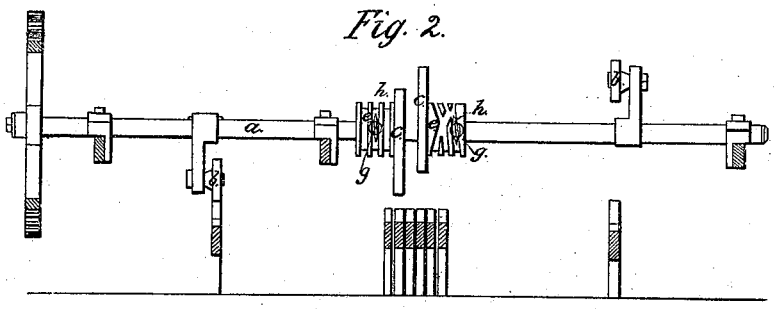

Fig. 3.

Fig. 4.

UNITED STATES PATENT OFFICE.

RICHARD GARSED, OF FRANKFORD, PENNSYLVANIA.

OPERATING TREADLE-CAMS IN LOOMS FOR TWILLING.

Specification of Letters Patent No. 4,645, dated July 20, 1846.

To all whom it may concern:

Be it known that I, RICHARD GARSED, of Frankford, in the county of Philadelphia, and State of Pennsylvania, have invented a new and useful improvement in shifting-cam looms for weaving twilled and all other kinds of fabrics requiring regular changes in the shifting of the harness, and that the following is a full, clear, and exact description of the principle or character thereof, which distinguishes it from all other things before known, and of the manner of making, constructing, and using the same, reference being had to the accompanying drawings, making part of this specification, in which—

Figure 1 is a horizontal section of the loom taken above the cam shaft; Fig. 2, a vertical section taken at the line (X X) of Fig. 1 and looking toward the front of the loom, and Fig. 3, a plan of the periphery of one of the cams developed.

The same letters indicate like parts in all the figures.

In the weaving of twilled fabrics it is known that the sets of harness have to be shifted in succession whether consisting of three or more, commencing with the first, then the second, then the third, &c., and back again to the first; this has generally been done by a series of cams, one for each treadle, requiring the cam shaft to move very slowly, and rendering an additional cam shaft necessary either for the harness cams or the shuttle cams. To obviate this I make the harness cams to slide endwise on the shaft and provide them each with a cylindrical hub the periphery of which has as many grooves cut in it as there are treadles to be worked by it in succession,—these grooves run in the direction of the circumference nearly the whole circuit, but toward the end the first takes a diagonal direction and runs into the second, and in like manner the second runs into the third, and the third then crosses the second and runs into the first, the inclination of the groove uniting the third and first and crossing the second being greater than that which unites the first and second, and the second and third. These grooves receive a feather which turns on a stud pin projecting from the frame, so that as the cam shaft rotates, (supposing the feather to be in the first groove) the first groove runs on the feather and when it becomes diagonal, to run into the second, the feather turns on the stud, and runs into the second groove thereby shifting the cam to the second treadle. In like manner it is shifted to the third, and then back to the first, the ends of the turning feather being rounded to prevent catching on the fillets between the grooves where the third groove crosses the second to run into the first.

In the accompanying drawings (*a*) represents the cam shaft with the picker cams (*b*, *b*) permanently attached in the usual manner and the harness cams (*c*, *c*) of the desired form to act on the treadles (*d*), six (the number required for three sets of harness to weave three twilled cloth) being represented in the drawings. The cams (*c*, *c*) are attached to cylindrical hubs (*e*, *e*) that slide freely on the shaft endwise and turning with it by means of a feather (*f*); and the cylindrical surface of these hubs have each three grooves 1, 2, 3, at equal distances apart, from the point (*i*) to (*i'*), in the direction of the arrow, the grooves are in the direction of the periphery, and from (*i'*) to (*i*) groove No. 1 runs in a diagonal direction into groove No. 2, and in like manner No. 2 runs into No. 3, and then groove No. 3 in the reverse direction into groove No. 1 and crossing the fillet which separates grooves, numbers 1 and 2. The studs (*g g*) project from the frame, and on the end of each of these turns of a feather (*h*) which fits the grooves freely, and made of such length with the ends reduced in thickness, (as represented in section at Fig. 4) as to pass the junctions of the diagonal portions of the grooves where they cross each other. When the diagonal portion of the grooves pass the feathers the smallest diameter of the cams pass the treadle at which time the cam and treadles are not in contact and therefore the former is free to slide on the shaft and to shift without touching the treadles.

From the foregoing it will be obvious that by increasing the number of grooves in each hub, my improvement can be applied to shift the cams for any desired number of treadles, and that the inclination of the diagonal portion of the grooves can be more or less at the discretion of the constructor, so long as the cams are so formed as not to be in contact with the treadles at the time they are shifted by the passage of the diagonal portion of the grooves over the feather.

I do not claim as my invention simply giving a reciprocating motion by means of a grooved cylinder, as that has been frequently done in mechanics, but

What I do claim as my invention and desire to secure by Letters Patent is—

Shifting the cams of looms by means of three or more grooves running from one into the other and the last running back into the first and crossing the others while the cams do not touch the treadles in manner and for the purpose substantially as herein described.

RICHARD GARSED.

Witnesses:
JOHN BROADBENT,
JASPER BROWN.