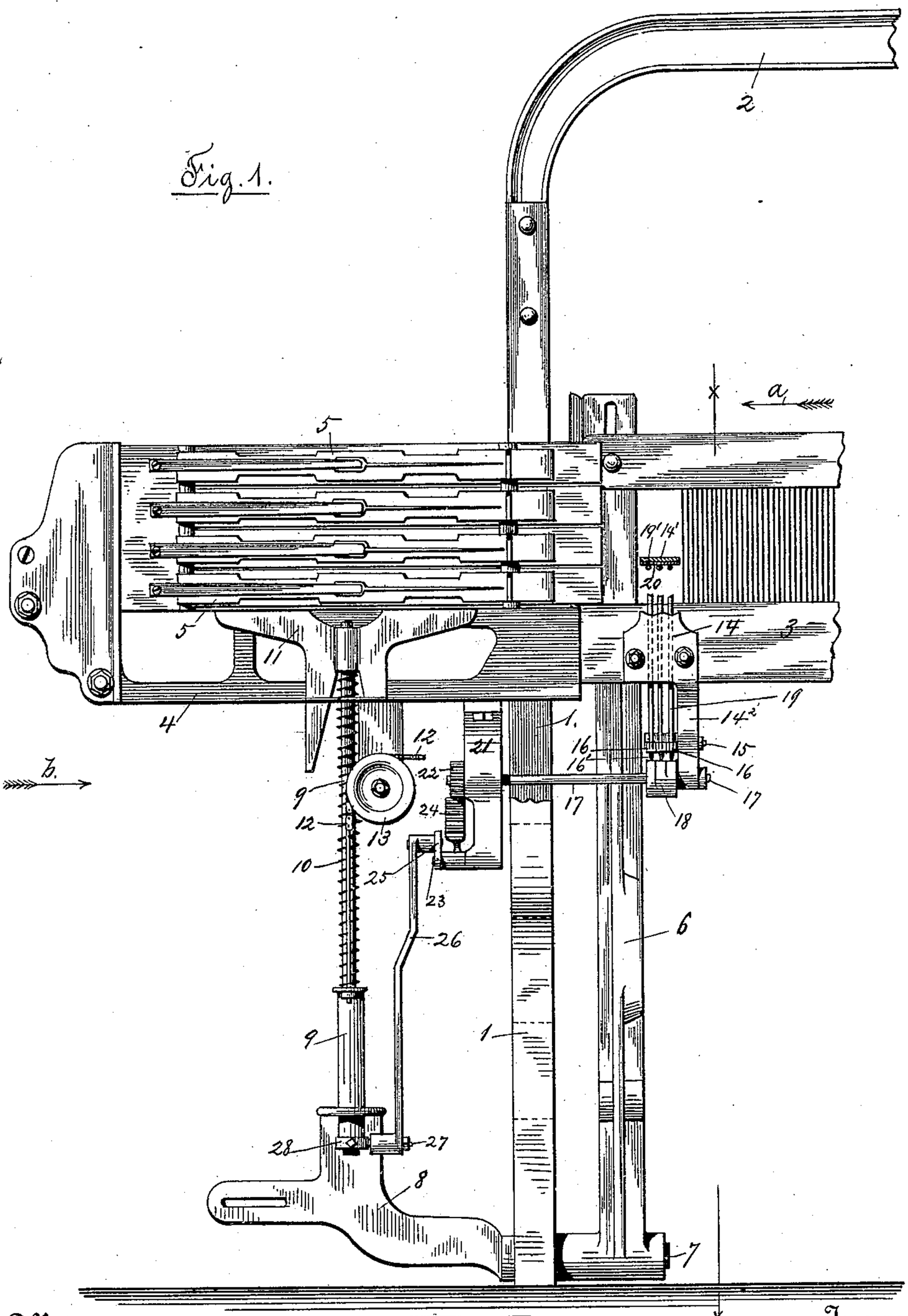
(No Model.) 2 Sheets—Sheet 1.

J. R. FITTON.

LOOM.

No. 397,074. Patented Jan. 29, 1889.

Fig. 1.



Witnesses,

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Clarence McSchofield

Inventor,

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By his Attorney

John C. Dewey.

(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

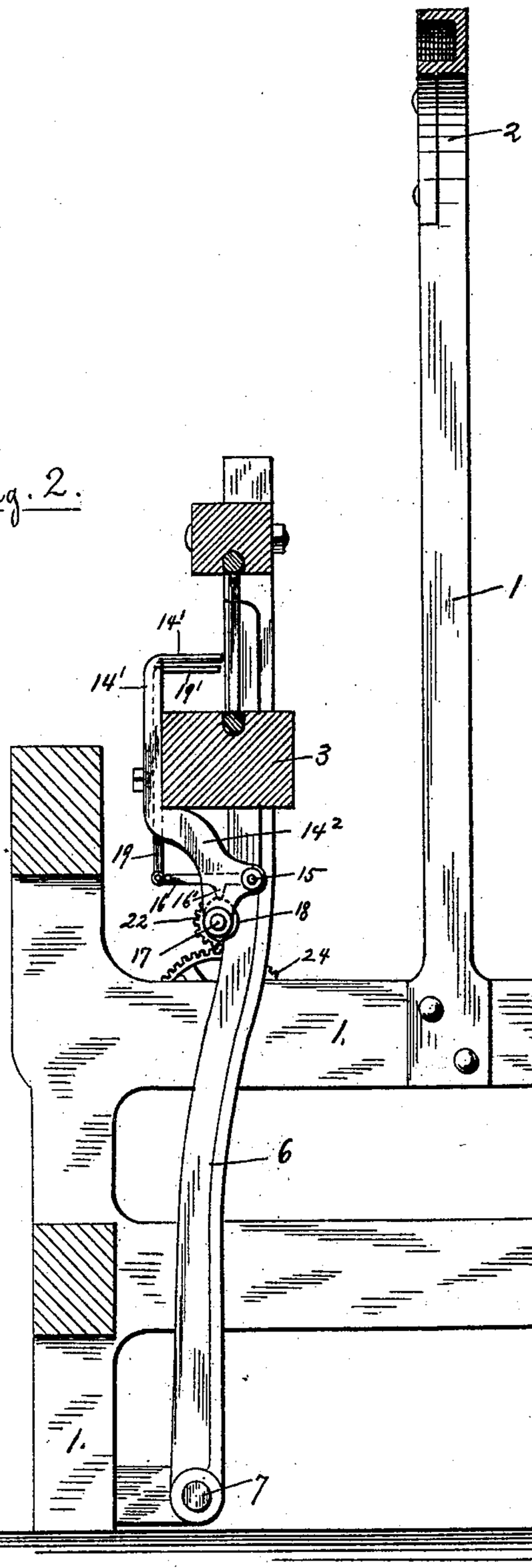
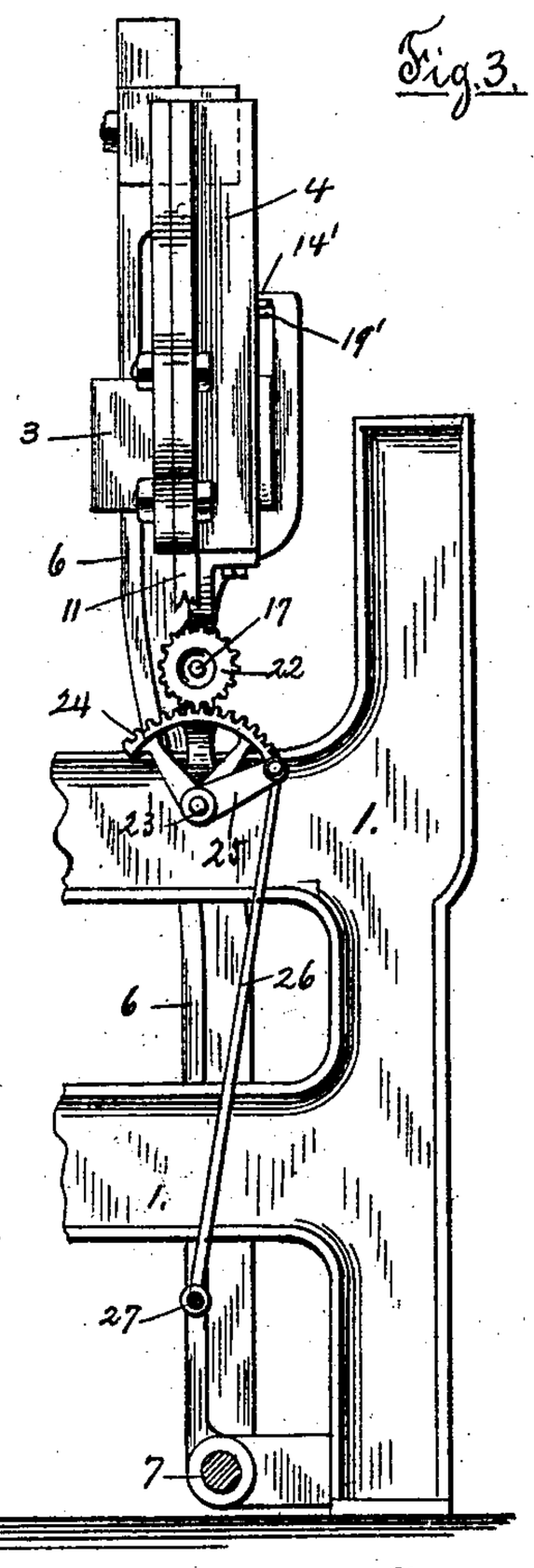


Fig. 3.



Witnesses
Chas. F. Schmelz,
Clarence M. Schofield

Inventor.
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UNITED STATES PATENT OFFICE.

JOHN R. FITTON, OF WORCESTER, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO TOM HOWARD, OF SAME PLACE.

LOOM.

SPECIFICATION forming part of Letters Patent No. 397,074, dated January 29, 1889.

Application filed February 20, 1888. Serial No. 264,653. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. FITTON, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Looms; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to looms for weaving, and more particularly to an improved mechanism to be applied to looms having two or more drop shuttle boxes, to prevent the filling from the shuttles which are not in use being drawn into the cloth or becoming entangled with each other.

The object of my invention is to provide a simple and effective mechanism to be applied to looms of ordinary construction for the purpose above stated, and I carry out my invention by arranging at the end of the lay a system of filling-feelers adapted to raise and hold the different fillings above the raceway while the shuttles from the lower boxes are thrown back and forth, said feelers being operated automatically to rise and fall, as the different shuttle-boxes are called, by cams and connecting mechanism operated by the ordinary shuttle-box motion of a loom, in the manner to be hereinafter fully described.

Referring to the drawings, Figure 1 is a side elevation of one end of the lay of a loom to which my invention is applied, some of the parts being shown broken away for a more clear illustration. Fig. 2 is a section taken at line *x x*, Fig. 1, looking in the direction of arrow *a*, same figure, the shuttle-boxes and other parts being left off in this figure. Fig. 3 is an end view looking in the direction of arrow *b*, Fig. 1, the shuttle-box lifter-rod, the lifter-rod arm, and other parts being not shown for the sake of clearness.

In the accompanying drawings, 1 is a portion of the loom side; 2, the arch; 3, the lay; 4, the lay end casting; 5, a tier of four drop-shuttle boxes; 6, the lay-sword connected at its lower end with the rocker-shaft 7; 8, the rocker-iron secured to the end of the rocker-shaft 7; 9, the shuttle-box lifter-rod supported at its lower end in the rocker-iron 8, and provided with a coiled spring, 10, and carrying at its upper end the lifter-fork 11 extending down from the tier of shuttle-boxes 5, all in the usual way.

The box-chain 12, secured at its lower end to the box-lifter rod 9, passes over a sheave, 13, supported on the lay end casting 4 and over another sheave, (not shown,) and forms a connection to the ordinary mechanism for automatically operating the shuttle-boxes, as fully illustrated and described in United States Patent No. 134,992, of January 21, 1873.

I will now describe my improved mechanism to prevent the fillings from being drawn into the cloth applied to the loom of ordinary construction shown in the drawings.

Bolted to the front side of the lay 3, at the end thereof and just at the open end of the tier of shuttle-boxes 5, is a casting or stand, 14, extending above the lay, with its upper end, 14′, turned inward at right angles and extending over the raceway a sufficient height above the same to allow of the shuttles, as they are thrown from the boxes, passing freely under the turned end 14′. The end 14′ may be made separate from and adjustably secured to the casting 14, if desired. From the lower part of the casting or stand 14 an arm, 14^2, extends down and under the lay 3 and furnishes a bearing for a stud, 15, upon which are pivoted the inner ends of three levers, 16. The lower end of the arm 14^2 of the casting or stand 14 furnishes a bearing for one end of the cam-shaft 17, upon which is secured a cam, 18, having three cam-surfaces adapted to operate the three levers 16 by means of projections 16′, which extend down from the lower edge of said levers and rest upon the cam-surfaces.

To the front end of the three levers 16 are pivoted the three vertical sliding parallel rods 19, which fit into grooves made in the inner face of the stand 14. The upper ends, 19′, of the rods 19 are in this instance bent in at right angles and extend inwardly over the raceway and under the turned-down end 14′ of the stand 14, forming the feelers to engage

the filling-threads. When the three turned-in ends 19′—that is, the feelers for the filling-threads—are raised to their highest positions, as shown in the drawings, by means of the cam-surfaces on the cam 18, through the intervention of the levers 16, they will press up against the under surface of the end 14′ of the stand 14, or against a yielding surface, 20, preferably secured thereon, and extend a sufficient height above the raceway, holding the filling-threads up with them, to allow of a shuttle from the lowest box passing freely under them. When the upper shuttle-box is at the raceway, the feelers 19′ are in their lowest position and extend into grooves in the raceway to allow of the shuttle from the top box passing freely over them.

The cam-shaft 17 is supported at its outer end in a bracket or arm, 21, and has a pinion, 22, fast thereon. In the lower end of the bracket 21 is supported a stud, 23, on which is a sector-gear, 24, which meshes with the pinion 22 to operate the cam-shaft 17 and parts connected therewith. To the outer end of the arm 25, secured to the hub of the sector-gear 24, is pivoted the upper end of the rod 26. The lower end of said rod 26 is pivoted upon a stud, 27, extending out from the collar 28 on the lower end of the box-lifter rod 9.

It will be seen that whatever motion is communicated to the shuttle-box lifter-rod 9 and the shuttle-boxes 5 by the shuttle-box motion (not shown) will also be communicated to the rod 26, and through arm 25, sector-gear 24, pinion 22, shaft 17, cam 18, levers 16, and rods 19 to the feelers 19′, thus causing said feelers 19′ to operate to raise and hold the filling-threads above the raceway, according as the different shuttle-boxes are called.

The operation of the mechanism above described, and illustrated in the drawings, will be readily understood by those skilled in the art.

There will be one less filling-feeler 19′ than there are shuttle-boxes, and when the lowest box is at the raceway the three feelers 19′ will be in their highest position, when the second lowest box is at the raceway two feelers will be in their highest position and one in its lowest, when the third box is at the raceway one of the feelers will be in its highest position and two in their lowest position, and when the top box is at the raceway the three feelers will be in their lowest position. The cam-surfaces on the cam 18 for operating, through the levers 16 and rods 19, the feelers 19′ are so made that according as each box is called by the box-motion the feelers 19′ are operated to act upon the filling-threads from the other boxes.

It will be understood that the details of construction of the several parts of my mechanism may be varied somewhat from what I have above described, if desired.

Instead of having a single cam, 18, with three cam-surfaces for operating the three levers 16, three separate cams may be secured upon the shaft 17.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the lay, the filling-feelers at the end of the raceway, rods 19, and levers 16, for operating the feelers, of a shaft carrying cam-surfaces for operating said levers 16, and mechanism connecting said shaft with the box-lifter rod to cause the same to be operated therewith, and the box-lifter rod, substantially as shown and described.

2. The combination, with the lay, the filling-feelers 19′, supported on the lay at the end of the raceway, rods 19, connected with said feelers, and levers 16, for operating said rods, of a shaft, 17, having cam-surfaces 18 thereon, a pinion, 22, sector-gear 24, arm 25, and rod 26, forming a connection between said shaft 17 and the shuttle-box motion, and said shuttle-box motion, substantially as shown and described.

JOHN R. FITTON.

Witnesses:
JOHN C. DEWEY,
CLARENCE SCHOFIELD.