

(No Model.)

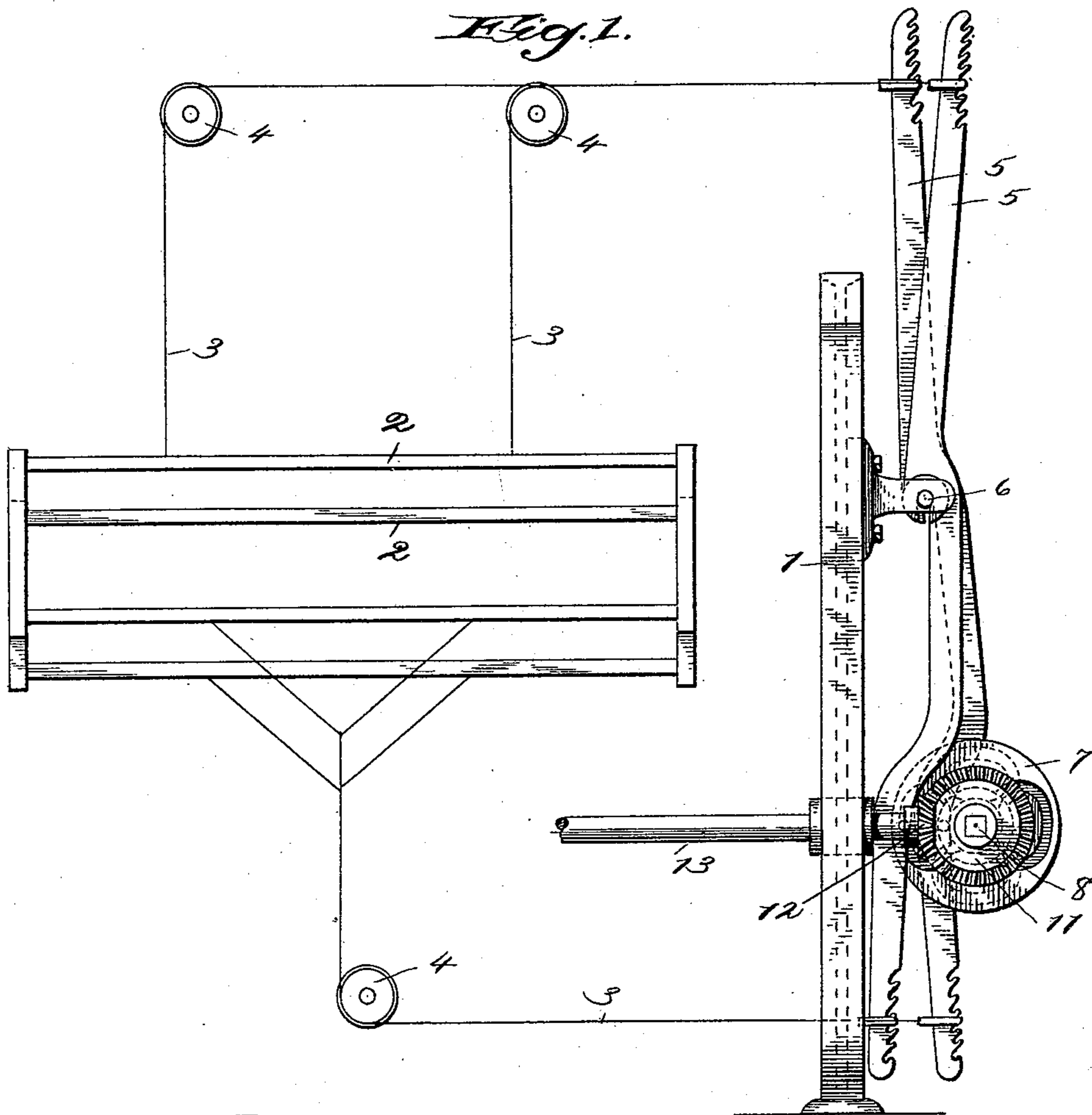
2 Sheets—Sheet 1.

O. W. SCHAUM.  
SHEDDING MECHANISM FOR LOOMS.

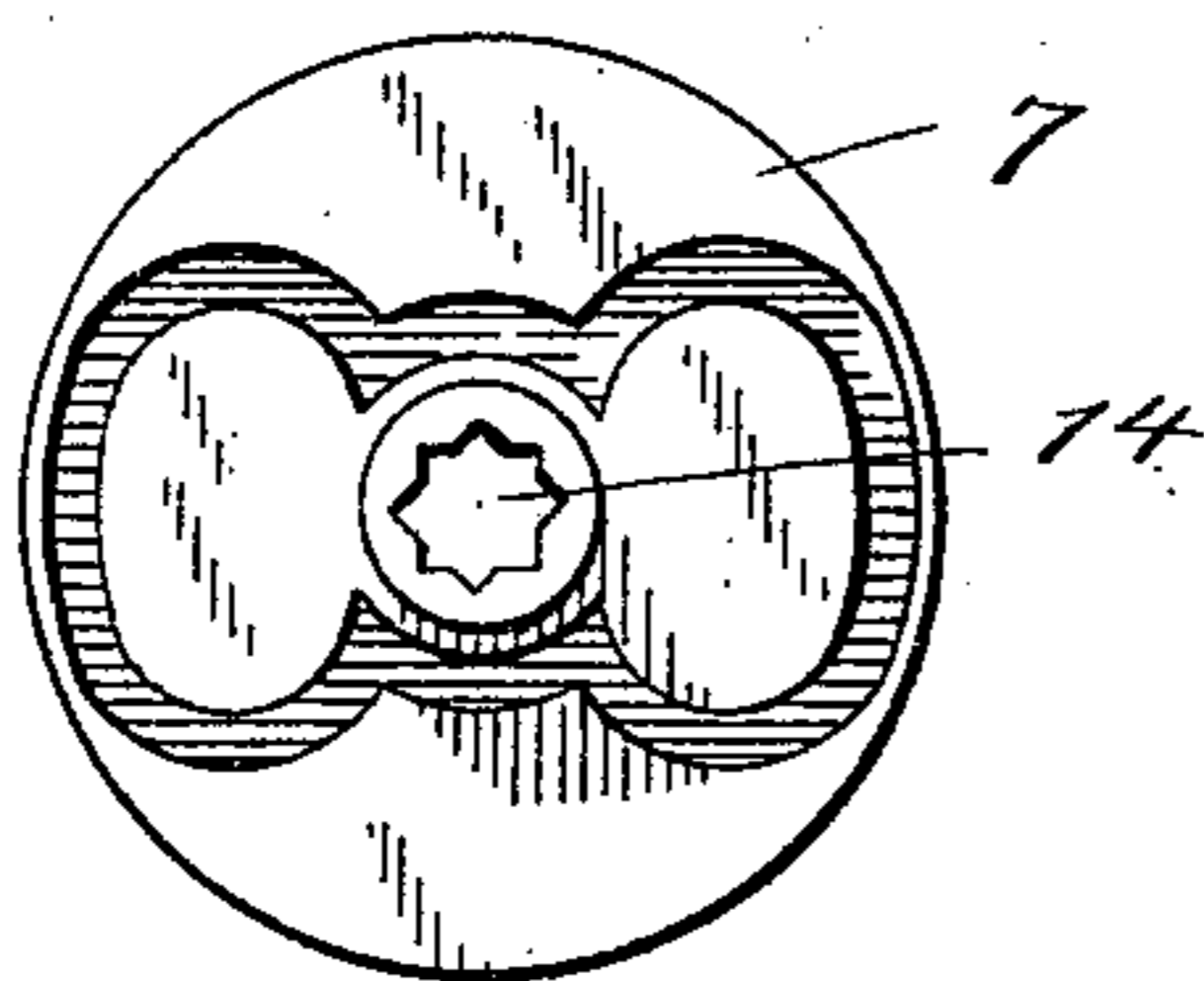
No. 492,908.

Patented Mar. 7, 1893.

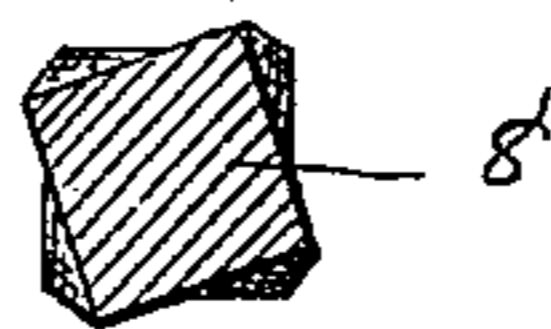
*Fig. 1.*



*Fig. 4.*



*Fig. 3.*



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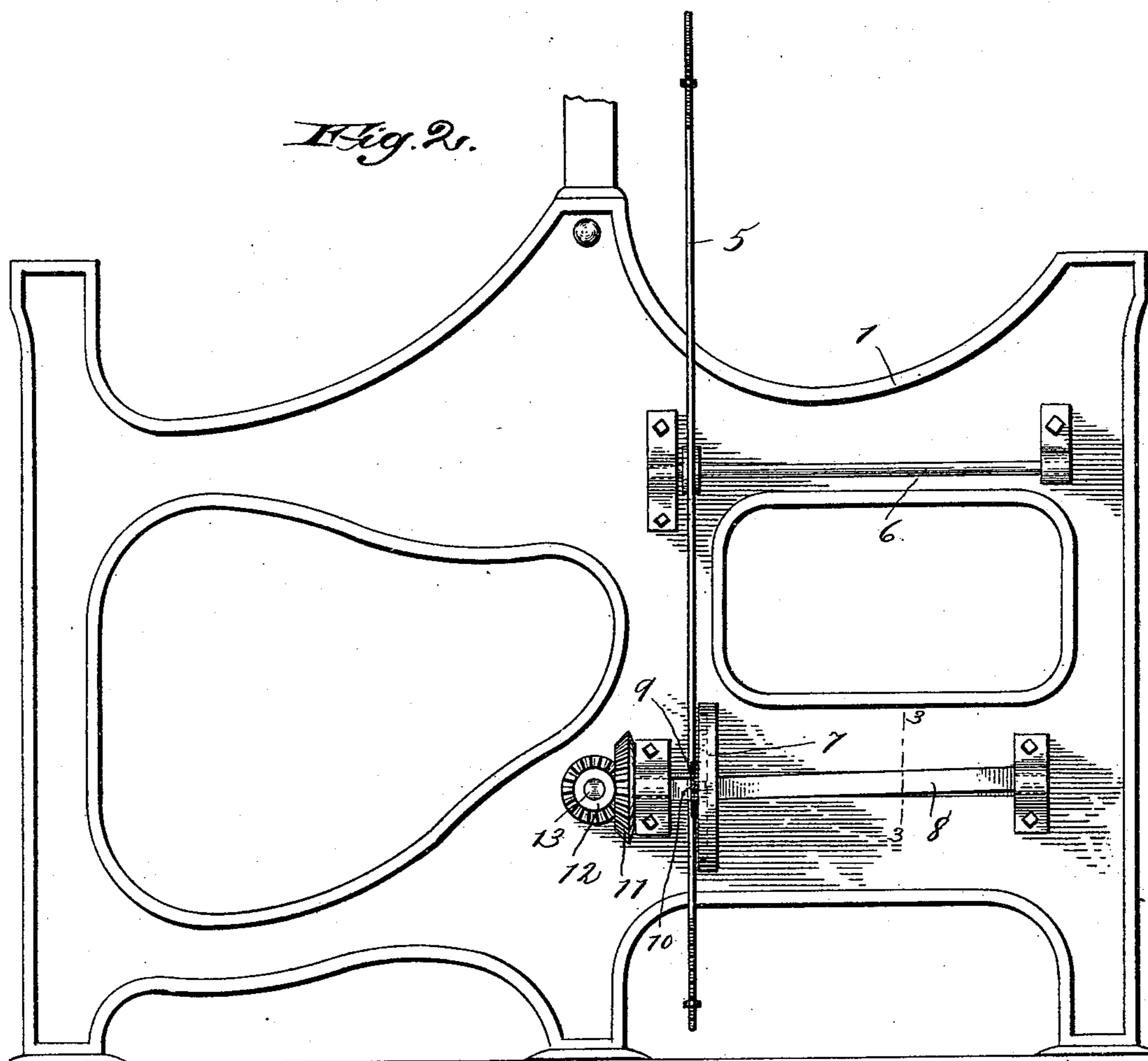
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# UNITED STATES PATENT OFFICE.

OTTO W. SCHAUM, OF PHILADELPHIA, PENNSYLVANIA.

## SHEDDING MECHANISM FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 492,908, dated March 7, 1893.

Application filed December 17, 1892. Serial No. 455,441. (No model.)

*To all whom it may concern:*

Be it known that I, OTTO W. SCHAUM, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Shedding Mechanism for Looms, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to shedding-mechanisms of that class wherein the harness-cord-  
ing is connected with harness-levers that are actuated, for the purpose of moving the harness frames up and down in the order required for the shedding, by means of cams mounted on a shaft which is rotated by suitable driving connections.

In looms employing a multiplicity of harness-frames, and weaving with thick-set warps, considerable breakage among the warp-threads commonly occurs, and the formation of the sheds frequently is imperfect. This is owing to the necessary massing together of the warp-threads, and the tendency of the threads to cling together. The number of warp-threads which it is necessary to employ in the weaving of some varieties of fabric is so great, and the warp-threads are so closely crowded together across the loom, that when two or more of the harness-frames are moved together in the same direction the compact series of warp-threads moved thereby offers a considerable resistance to the passage through them of the warp-threads which are being moved in the opposite direction, many threads being broken during the weaving in consequence of this resistance. The said resistance is increased when the warp-threads are of such materials that they tend materially to cling together. The clinging together often is so great, also, that when a large number of warp-threads is in one plane of the shed and a considerable portion thereof is simultaneously shifted from such plane of the shed toward the other breakage results, owing to the difficulty with which such warp-threads are separated from the others remaining in the original plane. As will be apparent the formation of clear and perfect sheds cannot always be secured on account of the foregoing causes.

The object of my invention is so to improve

shedding mechanisms of the class hereinbefore specified as to facilitate the movements of the warp-threads, and, by avoiding in great part the resistance to the passing of the warps by one another, and lessening the tendency of the warp-threads to cling together, reduce breakage to a minimum and insure the formation of good sheds. I secure the said object by an improved construction of parts which I now will proceed to describe, reference being had to the accompanying drawings, wherein is represented one embodiment of my invention.

In the drawings, Figure 1 is a view on the order of a diagram, showing one form of shedding mechanism of the class to which my invention relates. Fig. 2 is a view in elevation from the right hand side in Fig. 1, it showing only one harness-lever and its actuating cam. Fig. 3 is a view in vertical section on dotted line 3—3 of Fig. 2. Fig. 4 is a face view of one of the shedding-cams.

At 1 is shown one of the side-frames of a loom.

At 2, 2 are shown the harness-frames of a series of any suitable number, at 3, 3, the harness-cords which are connected with the said harness-frames, at 4, 4, the sheaves for changing the direction of the said cords 3, 3, at 5, 5 are shown harness-levers, which may be of any suitable or known form, and to which are connected the said cords, at 6 is the fulcrum-rod for the said levers.

At 7 are the shedding-cams, at 8 is the shedding cam-shaft on which the said cams are mounted, at 9 is one of the collars which are placed on the said shaft at the ends of the series of cams, at 10 is the clamping-screw whereby said collar is secured in place on the said shaft, at 11 is the bevel gear-wheel fixed on the end of the said shaft, and at 12 is the smaller bevel gear-wheel fixed on the cam-shaft 13 of the loom and meshing with the bevel gear-wheel 11 to transmit motion from shaft 13 to shaft 8 and its cams.

To save expense in construction, the cam-seating portion of the shedding cam-shaft 8, instead of being round in cross-section, as usual, is made polygonal in cross-section, preferably square. The cams 7 are cast with central eyes or holes 14 which are angularly shaped to fit upon the shaft 8, and the angles

of the latter serve as splines to compel the  
cams to turn with the shaft. This mode of  
construction dispenses with the necessity for  
providing the shaft with the ordinary spline  
5 sometimes employed, and that for slotting the  
hub or eye of each cam for the reception of  
the said spline, or a key, and avoids the ne-  
cessity of locating the slot or key-seat in each  
cam according to the position of the cam in  
10 the series of cams, as heretofore, for each cam  
formed as shown in Fig. 4 may be placed in  
any desired position of angular adjustment  
upon the shedding cam-shaft.

For the purpose of accomplishing the stated  
15 object of my invention I form the shedding  
cam-shaft so as that the cam-seating portion  
thereof shall have in effect a spiral twist  
around the longitudinal axis of the shaft, as  
shown in Fig. 2. This twist is in practice but  
20 slight, it being only sufficient to set the series  
of cams in such relative angular positions  
around the axis of the shaft as to create a  
slight difference in the times at which par-  
ticular harness-frames start to move in the  
25 same direction, this difference being that  
which is necessary in order to give enough  
lead to separate the threads which cling to-  
gether and divide into successive portions  
those warp-threads which are shifted in either  
30 direction. It will be apparent that when the  
warp-threads thus are moved in successive  
portions, those going in opposite directions  
will pass one another with less resistance than

heretofore, since those threads which tend to  
cling together will be separated successively, 35  
the formation of the sheds will be facilitated,  
and the shed will be clearer and freer than  
heretofore from warp-threads occupying im-  
proper positions.

As will be obvious, my invention may be 40  
embodied in shedding cam-shafts having their  
cam-seating portions formed otherwise than  
polygonal as in the drawings.

I claim as my invention—

1. The combination with the harness-levers, 45  
and the harness-cams for actuating the said  
levers, of a shedding cam-shaft having the  
cam-seating portion thereof formed with a  
spiral twist around the longitudinal axis of  
the shaft to occasion a lead in the operation 50  
of the cams, substantially as described.

2. The combination with the harness-levers,  
and the harness-cams for actuating the said  
levers having angularly formed holes or eyes,  
of the cam-shaft having the cam-seating por- 55  
tion thereof made polygonal and with a spiral  
twist around the longitudinal axis of the shaft  
to occasion a lead in the operation of the  
cams, substantially as described.

In testimony whereof I affix my signature in 60  
presence of two witnesses.

OTTO W. SCHAUM.

Witnesses:

F. A. REEVE,

EDWD. J. SWAIN.