

(No Model.)

2 Sheets—Sheet 1.

O. W. SCHAUIM.  
SWIVEL LOOM.

No. 493,653.

Patented Mar. 21, 1893.

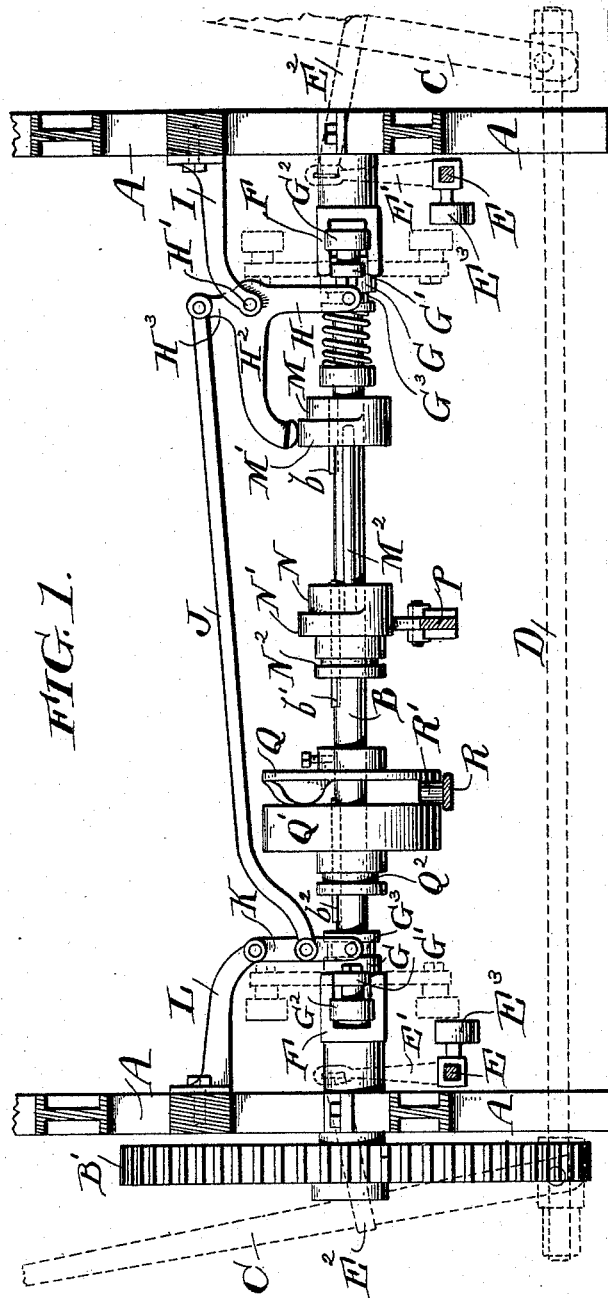


FIG. 1.

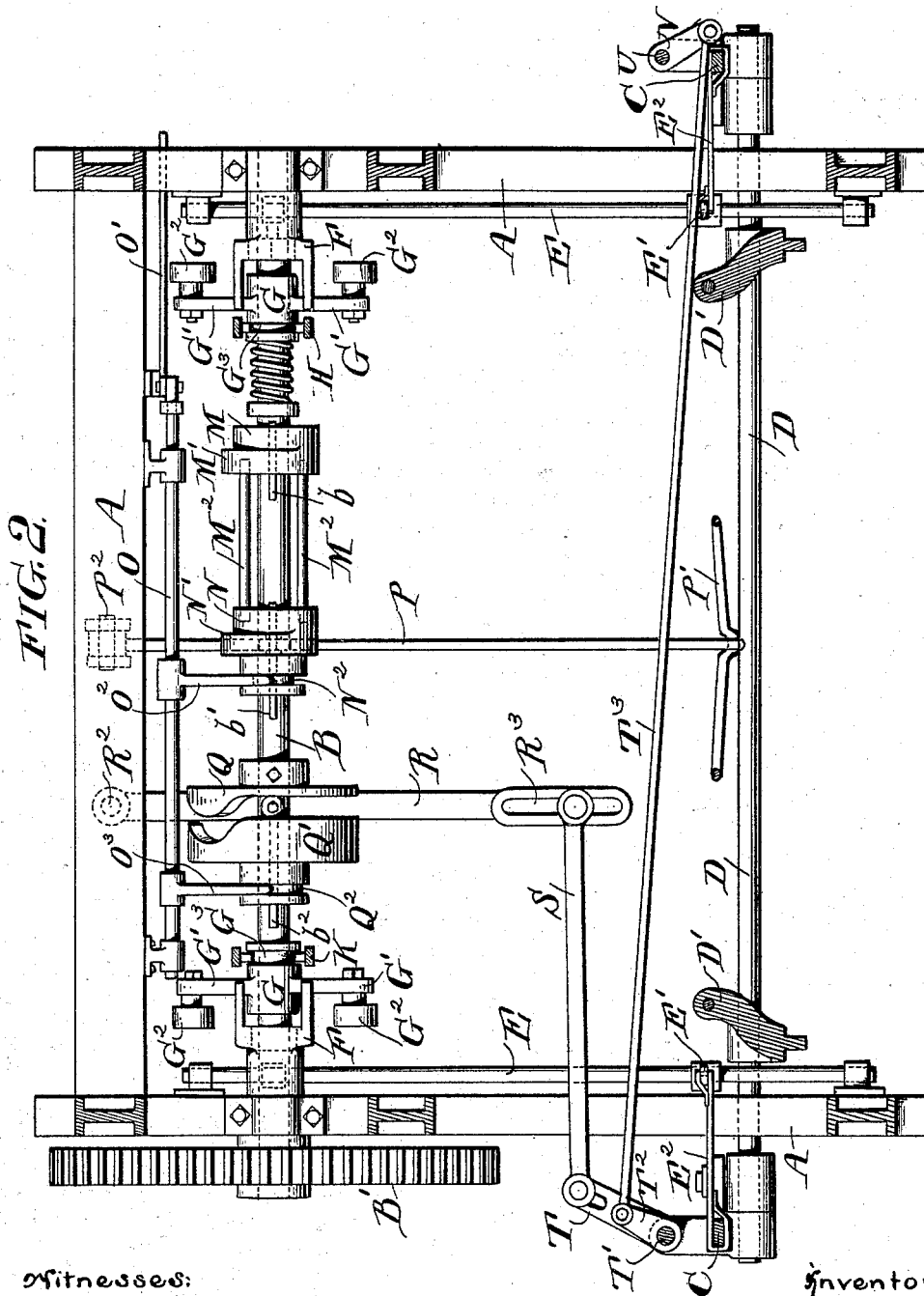
Witnesses:  
Henry Denny  
J. Russell

Inventor:  
Otto W. Schaum

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*Henry Dwyer*  
*J. Russell*

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*Otto W. Schaum.*

# UNITED STATES PATENT OFFICE.

OTTO W. SCHAUM, OF PHILADELPHIA, PENNSYLVANIA.

## SWIVEL-LOOM.

SPECIFICATION forming part of Letters Patent No. 493,653, dated March 21, 1893.

Application filed May 12, 1892. Serial No. 432,720. (No model.)

*To all whom it may concern.*

Be it known that I, OTTO W. SCHAUM, of the city and county of Philadelphia, State of Pennsylvania, have invented a certain new and useful Improvement in Swivel-Looms, of which the following is a true and exact description, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to that class of looms known as swivel looms, and has for its object to provide an improved device for throwing the bowls which operate the pick levers of the ground shuttle out of and into operation, and also for drawing the beam which carries the swivel shuttles into operative position when the bowls aforesaid are thrown out of operation.

The nature of my invention will be best understood as described in connection with the drawings in which it is illustrated, and in which,

Figure 1 is a part sectional view in elevation showing the main shaft of the loom with its attachments, among which is my improved device. Fig. 2 is a plan view of the same mechanism with some further connections, omitting, however, the mechanism for operating upon the picking bowls, except that the ends of the operating levers are indicated in sections.

A indicates the frame of the machine, B the main shaft, to which is attached a gear wheel B' by which it is driven.

C C, indicate the pick levers which are supported on the rock shaft D, from which extend the lay-swords indicated in section at D' D' in Fig. 2.

E E are rock shafts to which are attached lever arms E' E' connected with the pick levers by straps E<sup>2</sup>. Each shaft E has also a projecting arm E<sup>3</sup> which extends out into the path of the picking bowls when they are in operative position.

F F are forks or clutches secured to and rotating with the shaft B.

G G are hubs supported on shaft B, but movable longitudinally along it. From these hubs G G extend arms G' G' to the ends of which are connected the picking bowls G<sup>2</sup> G<sup>2</sup>. The forked clutch F which engages the arm

G causes the hub and the attached bowls to rotate with the shaft. When moved outward the bowls strike alternately on the lever arm E<sup>3</sup> causing a rocking motion of the shaft E, which is communicated to the pick levers by the device above mentioned. Each of the hubs G is provided with a groove G<sup>3</sup> which is engaged by the forked ends of levers H and K. The lever H forms one arm of a three armed lever H H<sup>2</sup> H<sup>3</sup> which is pivoted at H' on a bracket I. The lever K is pivoted in a similar way to the bracket L, and is connected as shown with the arm H<sup>3</sup> by a rod J. This connection, as is clearly apparent, will cause the levers H and K to move simultaneously in opposite directions; that is to say, either toward or away from the clutches F, F'; consequently when either bowl moves the bowls are either drawn away from or pushed into operative position.

Motion is given to the levers H, K, or bowl-carrying hubs through the said levers, by a cam M M' secured to the shaft B by a feather b but movable along the shaft so that either the part M or the part M' can be brought beneath the end of the lever arm H<sup>2</sup>. The part M of the cam is of circular section, and of a diameter which will permit the lever arm H<sup>2</sup> to fall to sufficient distance to cause its connecting arm H to push the bowls into operative position. The construction of the part M' of the cam is such as will elevate the arm H<sup>2</sup> once in each revolution, and acting through the arm H and the lever K draw the two bowl carrying hubs out of operation. This device for moving the bowls constitutes the main features of my invention.

Preferably I connect the cam M M' with a similar cam N N' as by rods M<sup>2</sup>. The function of the cam N N' being to act upon mechanism which will depress or elevate the beam which carries the swivel shuttles, and which as swivel looms are well understood, I have no need, therefore, I think to illustrate. As shown the cam N N is situated over a lever P pivoted at P<sup>2</sup> and connected with rods P' at its free end, which in turn are connected with the beam carrying swivel shuttles. This beam, as is usually the case, we will suppose to be normally held above the shed by springs. As long as the part N of the cam is above the

lever P the beam remains in its elevated position. When the cam is shifted so that the part N' comes in contact with the lever P, the lever and its connected parts are pushed  
5 down, and it will be seen that by reason of the connection of the two cams described the bowls are always drawn out of operative position at the same time the beam is drawn into operative position.

10 Any convenient device of course may be used for shifting the cam, as shown a rod O is provided with a finger O<sup>2</sup> which engages the groove N<sup>2</sup> of the cam NN'. The rod O is moved in any convenient way through a connecting rod O' and the two cams shifted by  
15 the connection described.

The drawings also show devices to be used in operating the swivel shuttles, which, however, form no part of the present invention, and are merely illustrated so that the parts  
20 of the loom shown in the drawings will be complete. This device consists of a cam QQ', the part Q of which is secured to the shaft B permanently, while the part Q' is secured to it by a feather U<sup>2</sup> so that it can move longitudinally along the shaft. A groove Q<sup>2</sup> along the part Q' of the cam is engaged by a finger O<sup>3</sup> extending out from rod O, by which arrangement it will be seen that the cam is closed simultaneously, coming into action with the cam  
30 parts MM' heretofore described. A pin R' extending out from a lever R pivoted at R<sup>2</sup> passes between the cam sections and is actuated by them when the cam is closed. A slotted end R<sup>3</sup> of lever R is connected with a rod S which in turn connects it with a lever arm T of an upright shaft T' supported on the rocking shaft D. The shaft T' is by means of an arm T<sup>2</sup> and a rod T<sup>3</sup> connected with an arm V of  
40 a similar upright shaft U, the connection being such that the shafts T' and U are simultaneously moved in opposite directions, and these shafts by any convenient connections therewith can be made to actuate the swivel  
45 shuttles. By the connection which I have described it will of course be seen that the shafts T' and U are only acted upon when the swivel shuttles are depressed and the bowls thrown out of operation.

50 The mechanism described and claimed in this operation is shown but not claimed in my pending application filed May 20, 1891, and serially numbered 393,475. Other parts of the apparatus shown and described but not  
55 claimed in this present application are de-

scribed but not claimed in my said prior application.

The forked clutches F are shown as convenient devices for at once causing the rotation of the bowl carrying hubs and permitting  
60 their longitudinal motion on the shaft. Any equivalent device may, however, be substituted for them.

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

1. In a loom the combination with a cam shaft B with clutches F F, hubs G, G, journaled on shaft B so as to be longitudinally  
70 movable thereon, bowl carrying arms G' secured to said hubs, a lever H H<sup>2</sup> H<sup>3</sup> pivoted at H' and having an arm as H engaged with one of the hubs G, a pivoted lever K engaged with the other hub, a rod J connecting lever K with lever H H<sup>2</sup> H<sup>3</sup> as described and so that  
75 lever J and arm H will move reciprocally in opposite directions and thrust the bowls simultaneously into and out of operative position, a cam M M' longitudinally movable on shaft B so placed as to engage an arm as H<sup>2</sup>  
80 of lever H H<sup>2</sup> H<sup>3</sup>, and actuate it as described, and means for moving said cam.

2. In a loom the combination with a cam shaft B with clutches F F, hubs G G journaled on shaft B so as to be longitudinally  
85 movable thereon, bowl carrying arms G' secured to said hubs, a lever H H<sup>2</sup> H<sup>3</sup> pivoted at H', and having an arm as H engaged with one of the hubs G, a pivoted lever K engaged with the other hub, a rod J connecting lever  
90 K with lever H H<sup>2</sup> H<sup>3</sup> as described and so that lever J and arm H will move reciprocally in opposite directions and thrust the bowls simultaneously into and out of operative position, a cam M M' longitudinally movable on  
95 shaft B so placed as to engage an arm as H<sup>2</sup> of lever H H<sup>2</sup> H<sup>3</sup> and actuate it as described, a cam N N' also longitudinally movable on shaft B, rods M<sup>2</sup> connecting cams M M' and N N' so that they will move together, a cam  
100 shifter O arranged to engage and shift the cams and a swivel beam depressing lever P arranged in the path of cam N N', all substantially as described, and so that the bowls are withdrawn from the clutches simultaneously  
105 with the depression of lever P.

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