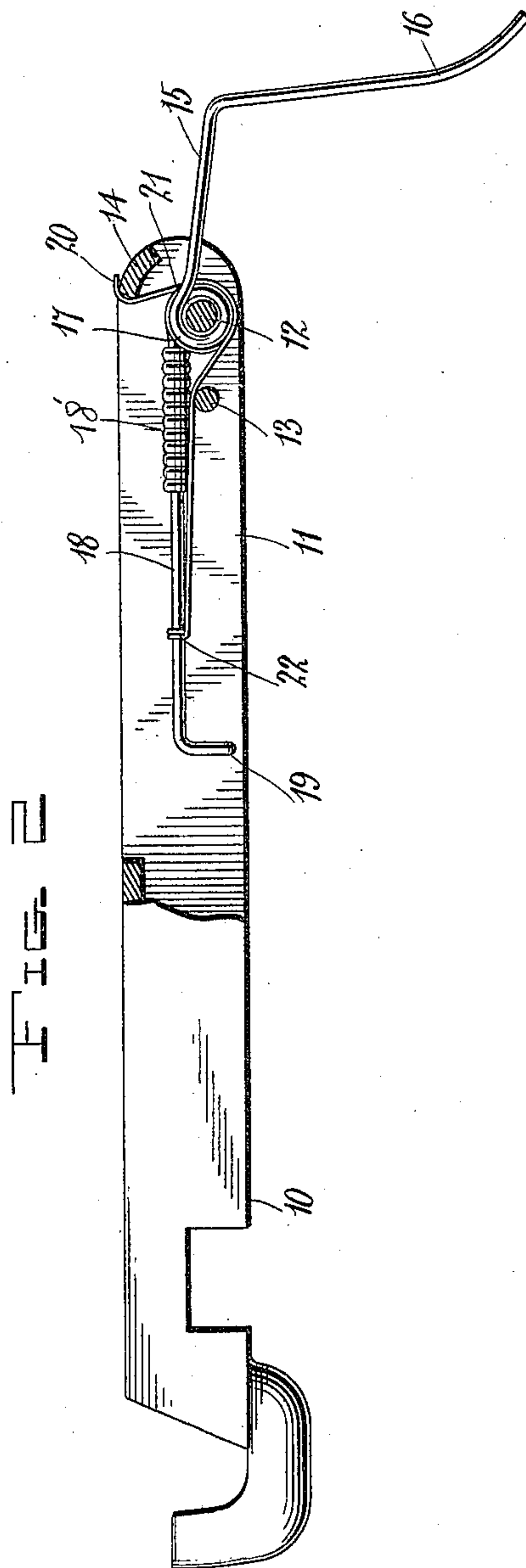
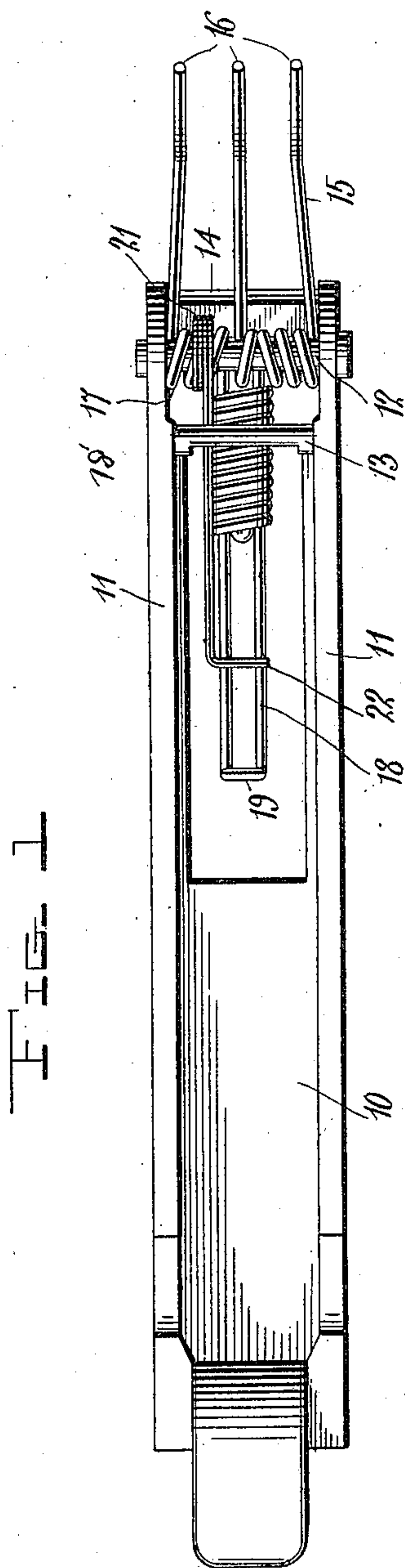


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WEFT FORK SPRING.  
APPLICATION FILED FEB. 12, 1910.

975,647.

Patented Nov. 15, 1910.



Witnesses  
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# UNITED STATES PATENT OFFICE.

REUBEN SMITH, OF SPRAY, NORTH CAROLINA.

WEFT-FORK SPRING.

975,647.

Specification of Letters Patent. Patented Nov. 15, 1910.

Application filed February 12, 1910. Serial No. 543,536.

*To all whom it may concern:*

Be it known that I, REUBEN SMITH, a citizen of the United States, residing at Spray, in the county of Rockingham, State of North Carolina, have invented certain new and useful Improvements in Weft-Fork Springs; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to weft forks such as are commonly used in the weft stop motions for looms.

It is a well understood fact that the weft fork used in weft stop motions consists of a light wire fork pivoted to a carrier. This fork is provided with a downwardly extending end or hook and as the lay moves backward and forward toward the breast beam on which the carrier is mounted, the fork is tilted on its pivot provided a weft strand extends across the grid or grating of the lay, while if the weft strand be broken the tines of the weft fork pass between the wires of the grid so that the fork is not tilted. It is also understood that a wiper moves constantly beneath the weft fork and that the upper end of this wiper engages the hook of the fork unless the same be tilted. This engagement actuates the stop motion so that if the weft thread be broken the stop motion is actuated, while if the weft thread be entire the fork is tilted and the wiper does not engage the hook so that the carrier is not moved and the motion of the loom continues. Now, due to the lightness of the fork, this being made necessary by the delicacy of the weft strand as ordinarily employed, this fork is extremely liable to vibratory motion set up by the shaking of the loom while running and it frequently happens that a weft will break, and due to this vibratory motion the wiper will fail to engage the hook of the weft fork and consequently the loom will not be stopped. This results in a thin place in the web.

The object of the present invention is to provide a novel means for overcoming this defect and this object is attained by the use of a delicate spring arranged in a novel manner to hold the weft fork in such position that any breakage of the weft strand will be certain to actuate the stop mechanism.

With this object in view the invention

consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and specifically set forth in the claims.

In the accompanying drawings, like characters of reference indicate like parts in the several views, and Figure 1 is a bottom view of a weft fork equipped according to this invention. Fig. 2 is a side elevation of such a fork, one of the arms of the carrier being broken away the better to show the arrangement of the parts, and certain parts being in section.

The carrier used in this invention comprises the usual top portion 10 having at its forward end, this being understood to be the end in the direction of the lay, a pair of spaced arms 11. The space between these arms is spanned adjacent the forward ends of the arms by a pivot pin 12 and behind this pivot pin is a cross bar 13 connecting the arms and serving as a stop for the fork in one direction. In front of and above the pivot pin 12 is a cross bar 14 also connecting the arms 11 and likewise serving as a stop for the weft fork. The weft fork here shown comprises tines 15 having downwardly bent ends 16. The tines are formed with a sleeve 17 which engages over the pivot pin 12 and projecting from this sleeve is a shank 18 at the rear end of which is formed a lug or hook 19 which projects downwardly and is adapted to lie, under the condition before mentioned, in the path of a wiper not deemed necessary here to be shown. The downward motion of the shank 18 is limited by the stop 13 and the upward motion of this shank by the stop 14, this being clearly apparent by reference to Fig. 2. It is to be noted that the center tine is connected to the remainder of the tines by coiling around the pin 12 and bringing the rear end between the sides of the shank 18, said end being held in position by suitable wire wrapping 18'.

In order to hold the hook 19 in position for engagement by the before mentioned wiper a certain spring is provided which forms the subject of this invention. This spring is provided with a hooked end 20 which is engaged with the stop bar 14 and the spring is then wound spirally around the pivot pin 12 as indicated at 21. This spring is then continued rearwardly alongside of the shank 18 and is extended across and se-



cured around said shank by bending in the proper manner as indicated at 22. This spring is made of very light spring steel and consists of a plurality of strands of thin  
 5 spring steel wire soldered side by side throughout their length, this type of spring being peculiarly adapted to the purpose since it yields readily to the slight force exerted by the weft strand on the ends 16, while at  
 10 the same time this yielding is of a sluggish nature so that the slight tendency to vibration caused by the shaking of the loom when running does not affect the holding of the shank 18 on the stop 13, thus insuring that  
 15 the hook 19 is, whenever the weft strand is broken, in proper position for engagement by the wiper.

By means of this arrangement the weft fork is of the required delicacy of operation  
 20 while it is so arranged that the stop motion will act with absolute certainty upon the breaking of the weft strand.

There has thus been provided a simple and efficient device of the kind described and  
 25 for the purpose specified.

Having thus described the invention, what is claimed as new, is:—

1. In a device of the kind described, a weft fork carrier having a pair of spaced  
 30 arms, a pivot pin spanning the space between said arms, a stop bar connecting said arms behind said pivot pin, a second stop bar connecting said arms in front of and above said pivot pin, a weft fork carried on  
 35 said pivot pin and provided with a shank adapted to lie between said arms, a hook

projecting downward from said shank and adapted to be engaged by a wiper, and a spring having one end hooked and engaging the second stop bar, said spring being coiled  
 40 around the pivot pin and extending backward and engaging the shank of the weft fork to hold said shank yieldingly against the first stop bar.

2. In a device of the kind described, a weft fork carrier having a pair of spaced  
 45 arms, a pivot pin spanning the space between said arms, a stop bar connecting said arms behind said pivot pin, a second stop bar connecting said arms in front of and  
 50 above said pivot pin, a weft fork carried on said pivot pin and provided with a shank adapted to lie between said arms, a hook projecting downward from said shank and adapted to be engaged by a wiper, and a  
 55 spring having one end hooked and engaging the second stop bar, said spring being coiled around the pivot pin and extending backward and engaging the shank of the weft fork to hold said shank yieldingly against  
 60 the first stop bar, said spring comprising a plurality of light spring steel wires soldered together from end to end and lying side by side in the direction across the space between  
 65 said arms.

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

REUBEN SMITH.

Witnesses:

ROBERT SMITH,  
 W. H. GROGAN.