

(No Model.)

DU TEE S. KNIGHT.  
TUG STRAP AND HOLDER FOR LOOMS.

No. 434,988.

Patented Aug. 26, 1890.

FIG. 1.

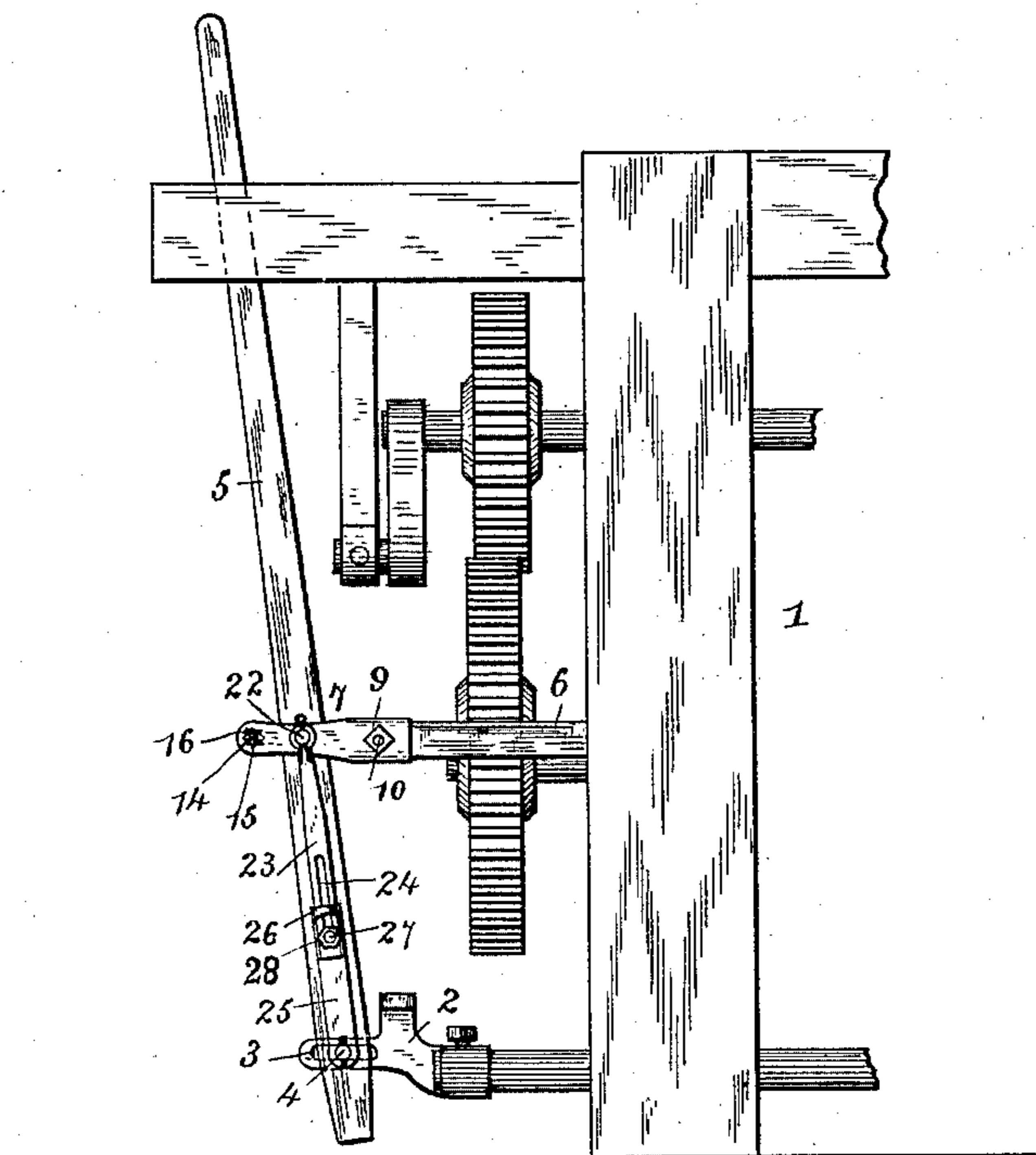


FIG. 2.

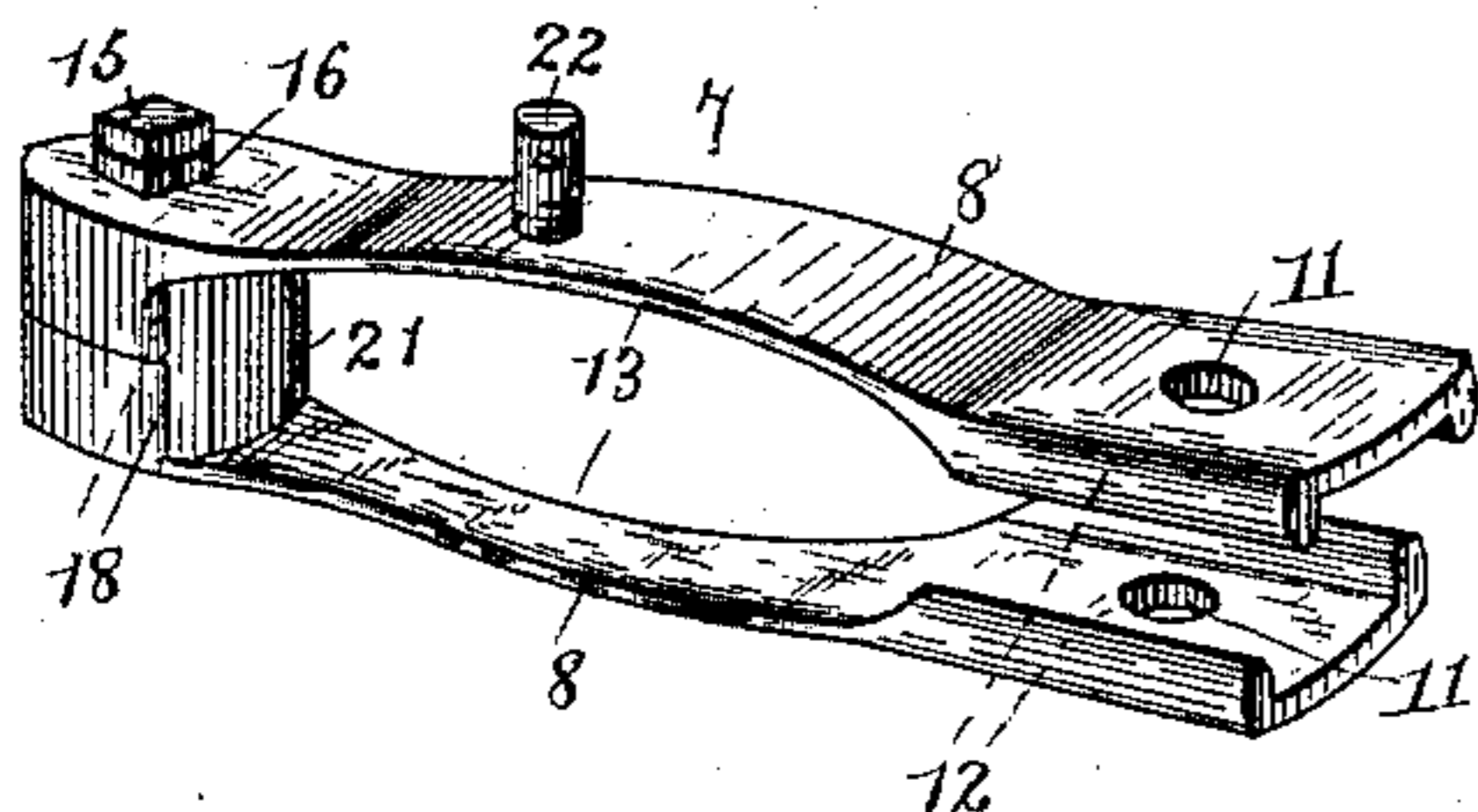


FIG. 3.

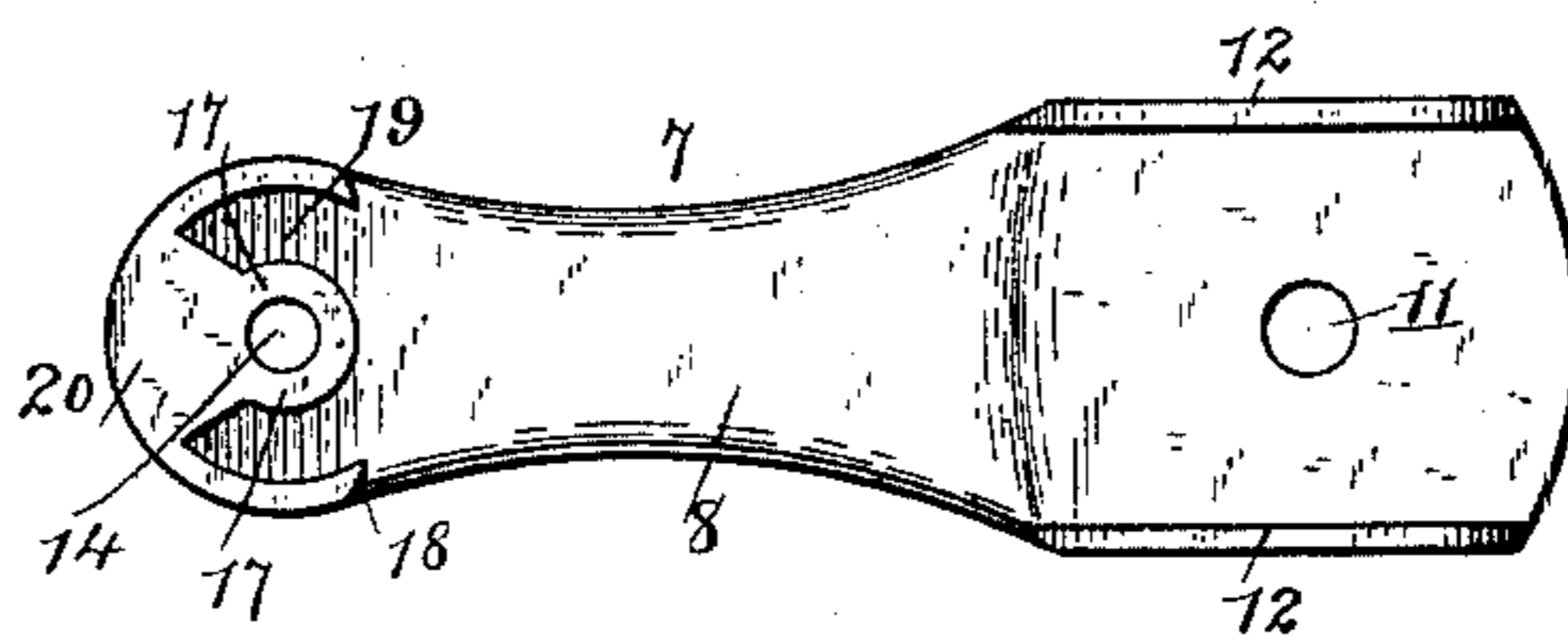
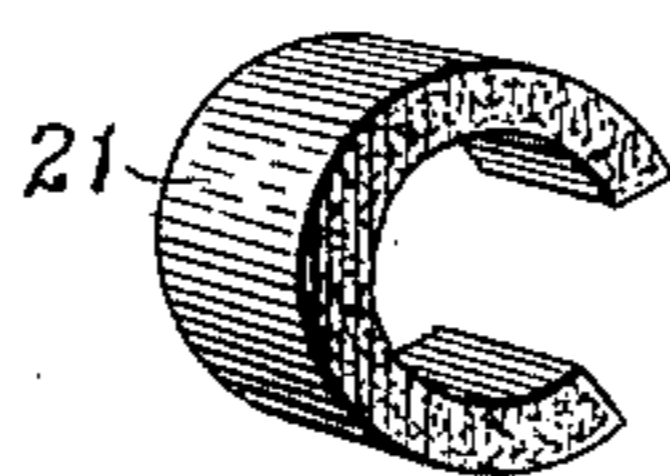


FIG. 4.



Witnesses:

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# UNITED STATES PATENT OFFICE.

DU TEE S. KNIGHT, OF HINSDALE, NEW HAMPSHIRE.

## TUG STRAP AND HOLDER FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 434,988, dated August 26, 1890.

Application filed March 15, 1890. Serial No. 344,027. (No model.)

*To all whom it may concern:*

Be it known that I, DU TEE S. KNIGHT, a citizen of the United States, residing at Hinsdale, in the county of Cheshire and State of New Hampshire, have invented a new and useful Tug Strap and Holder for Looms, of which the following is a specification.

This invention has relation to improvements in looms, and has particular reference to improvements in the manner of mounting and connecting the picker-staffs thereof with the elements operating the same.

The objects of the invention are to provide a simple and convenient means for adjusting the power applied to the staff; to avoid perforating the staff for connecting the same with the end of the connecting-rod; to avoid the use of the usual leather or textile straps for connecting the end of the connecting-rod with the picker-staff, and to permit of a free movement of the picker-staff independent of the connecting-rod, and to avoid any abrasions of the staff during such movement.

Various other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is an elevation of a picker-staff and a portion of a loom and connections between the two constructed in accordance with my invention. Fig. 2 is a detail view of the tug. Fig. 3 is an inner elevation of one of the tug-straps. Fig. 4 is a perspective of the leather buffer.

Like numerals of reference indicate like parts in all the figures of the drawings.

1 represents the frame of the loom, to the rocker-shaft of which is secured in the usual manner the rocker-iron 2, at the outer end of which there is provided the elongated opening or slot 3, in which, by a bearing-bolt 4, the lower end of the picker-staff 5 is connected. The picker-staff 5 is of the usual construction, so far as the staff itself is concerned, with the exception that no openings or perforations are formed therein above the bolt 4, whereby all weakening of the staff by reason thereof I clearly avoid.

6 represents the connecting bar or stick, usually connected to the picker-staff by means of a leather or canvas tug. Such tugs, sub-

jected as they are to constant jerking and agitation, soon become worn and require replacing, thus necessitating the stoppage of the loom and incurring cost in the article itself.

By my invention I connect the picker-stick with the bar or stick 6 by what I term a "metal tug" 7. The tug 7 consists of opposite straps 8, of malleable iron, a strap 8 being arranged at each side of the picker-staff and bolted to the connecting-stick by means of a transverse bolt 9, bound in position by a nut 10, said bolt passing through the straps and stick. The opposite sides of the strap for a short distance each side of the bolt-opening 11, through which is inserted the bolt 9, are provided with inwardly-disposed stick-embracing flanges 12. In rear of the flanges 12 the straps are slightly spread, as at 13, and again contracted toward their heels. The heels of the straps are provided with bolt-openings 14, through which is passed a transverse binding-bolt 15, having a binding-nut 16. The inner faces of the heels are provided with bosses 17, through which bosses the bolt-opening formed in the heels is continued. The heels are also provided with outer surrounding flanges 18, the flanges being concentric with the bosses and combining therewith to form an intermediate space 19, which at the outer sides are provided with partitions 20, occurring opposite each other. Seated in the intermediate recess formed by the flanges and bosses is an almost cylindrical piece or strip of leather or canvas forming a buffer 21. The swells of the straps 13 form an opening intermediate the same, and upward through said opening passes the picker-staff, adapted to be actuated by the reciprocations of the connecting-stick, the edges of the picker-staff being guarded against abrasion by reason of the buffer 21, the face of which is exposed at the end of the opening formed by the spread in the strap. The exterior surface of the outer strap 8 is provided with a bearing-stud 22, connected with which is the upper end of the slotted rod 23, the lower end having the slot 24. Upon the bolt 4 there is mounted the lower rod 25, having a keeper 26 at one end, through which passes the end of the rod 23, there-

by forming a sliding connection between the two rods, which connection is removably locked by a set-bolt 27, having a set-nut 28. The two rods 23 and 25 combine to form what

5 I term the "lug-holder" for adjusting or graduating the power. By this construction of holder it is apparent that the holder may be lengthened so as to raise or lower the tug farther from or nearer to the pivot-point 4, 10 thus increasing or decreasing the power in accordance with the position of the tug upon the picker-staff.

By my invention of providing the malleable-iron tug it will be apparent that the great ex- 15 pense heretofore incurred and the time expended in the use of the leather tug and in inserting the same when breaks occur are all avoided. Furthermore, by my invention the loom runs smoother and better, as the holder 20 maintains the tug in the same place at all positions and during all movements of the picker-staff. The power is nearer even, which is secured by a direct and straight throw of the shuttle, thereby avoiding all chafing or 25 frictional contact by the shuttle coming in contact with the wall. By my invention, also, all weakening of the picker-staff by the formation of holes therein is avoided and thereby a great amount of breakage, and as the holder 30 is always in the same position and cannot drop it will save a great many "smashes" in goods being woven.

It will be observed that my holder and tug are adjustable to any loom now in use. The 35 tug-strap being of metal will not stretch as does the leather strap, but will always remain the same, thus avoiding loss of power and running the loom smoother. The leather roll in the heel of the tug prevents any wear on 40 the picker-staff, and as the holder is placed in the center on the side of the picker-staff it will hold the tug-strap at precisely the same location in every position as the loom is running. Then as the heel roll or buffer rides 45 down as the picker-staff passes over the center of the stroke and toward the pivot 4, power will be gained at the latter portion of the

throw, thus throwing the shuttle straight and preventing the same from chafing the warp.

Having thus described my invention, what 50 I claim is—

1. The combination, with a pivoted picker-staff and a connecting-stick, of a tug formed of opposite sections bolted to the stick and having their heels connected together and in- 55 termediate, said heels flared to form an opening or passage for the picker-staff, said heels having their adjacent faces provided with opposite registering semicircular recesses, and a semicircular bumper seated in the recesses, 60 substantially as specified.

2. The combination, with a picker-staff, its pivot, and a connecting-stick, of a metal tug bolted at one end to the stick and having an opening for the reception of the picker-staff 65 and provided at one side with a bearing-stud and a holder for supporting said tug, the same consisting of opposite rods pivotally connected to the bearing-stud and the bearing for the staff, said rods having their adjacent ends 70 adjustably connected, substantially as specified.

3. The combination, with the rocker-iron having the elongated slot, the picker-staff, its bearing-bolt, and the connecting-stick, of the 75 metal tug embracing the picker-staff bolted to the end of the stick and provided with an external bearing-stud and the opposite holder-sections at their outer ends to the bearing-stud and the bearing-bolt of the shaft, re- 80 spectively, one of said sections having a slot near its inner end and the other provided with a section-embracing keeper, and an adjusting-bolt passing through the slot of the opposite section and having a set-nut, sub- 85 stantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

DU TEE S. KNIGHT.

Witnesses:

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