

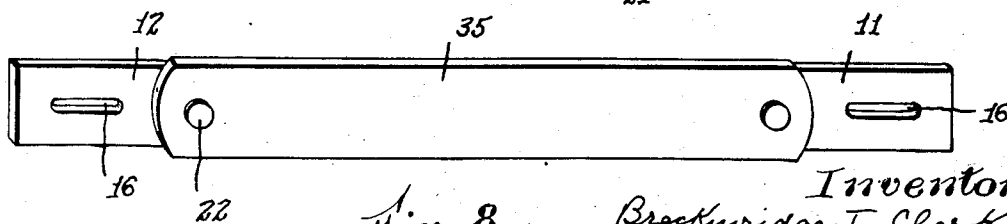
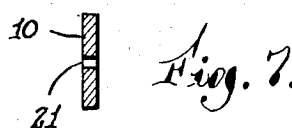
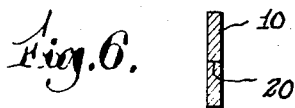
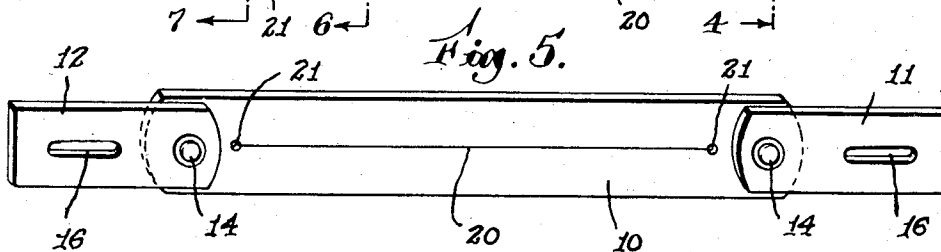
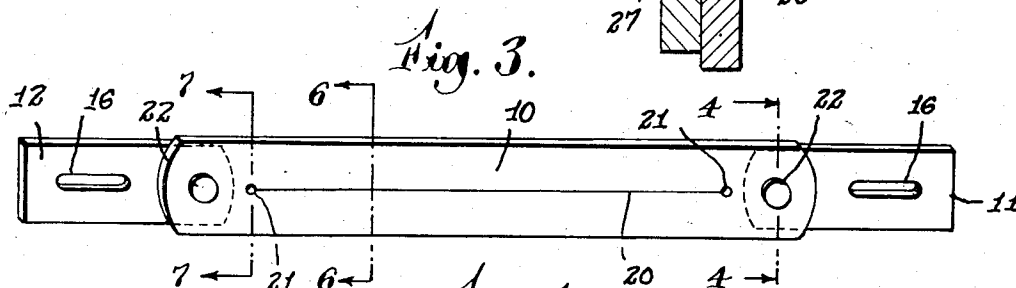
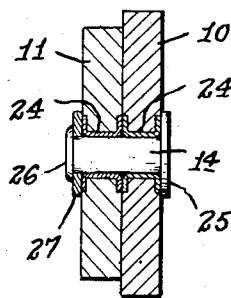
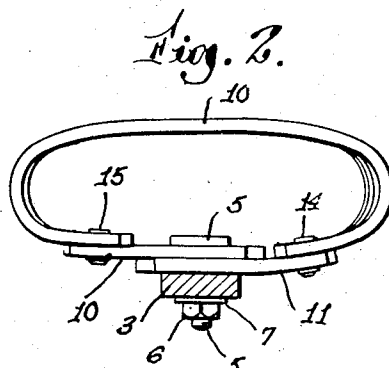
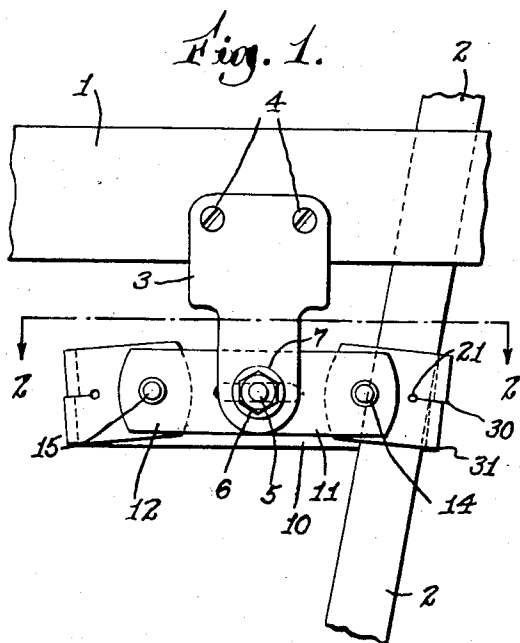
March 25, 1941.

B. T. CLARK

2,236,488

CHECK STRAP

Original Filed March 12, 1938 2 Sheets-Sheet 1



Inventor  
Breckinridge T. Clark  
by James R. Hodder  
Attorney

March 25, 1941.

B. T. CLARK

2,236,488

CHECK STRAP

Original Filed March 12, 1938 2 Sheets-Sheet 2

Fig. 9.

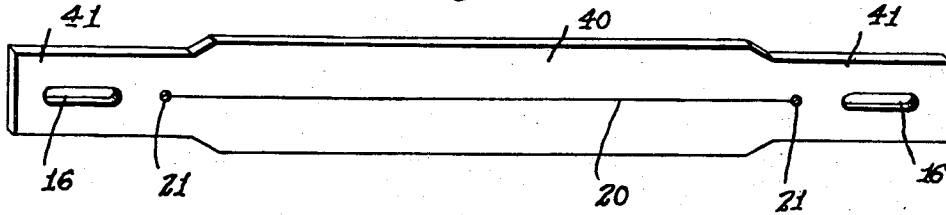


Fig. 10.

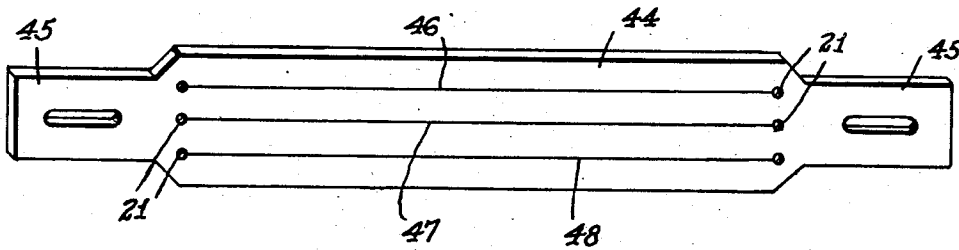


Fig. 11.

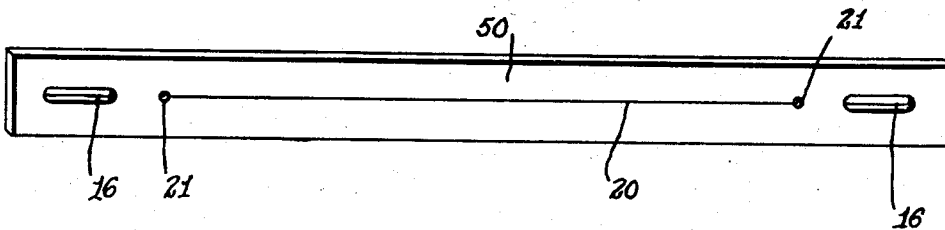


Fig. 12.

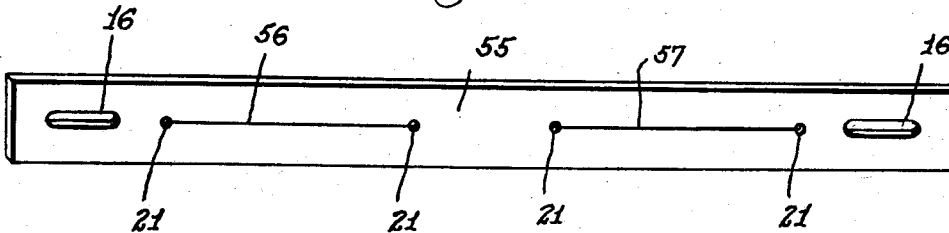
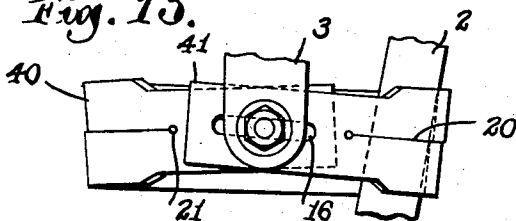


Fig. 13.



Inventor  
Breskinridge T. Clark  
by James R. Hodder  
Attorney

## UNITED STATES PATENT OFFICE

2,236,488

## CHECK STRAP

Breckinridge T. Clark, Danielson, Conn., assignor  
to E. H. Jacobs Manufacturing Company, Inc.,  
Danielson, Conn., a corporation of Connecticut

Refile of abandoned application Serial No. 195,444,  
March 12, 1938. This application filed July 27,  
1940, Serial No. 348,045

2 Claims. (Cl. 139—161)

My present invention is directed to novel and improved check straps for use on looms to constitute a checking member for the picker stick during the operation of a shuttle in a loom, and also consists in a novel process of constructing same.

Heretofore, constant difficulty has been found with check straps wearing out unevenly and quickly due to the constant hammering transmitted by the shuttle thru the picker stick, which picker stick, being swung on a pivot, would strike against the check strap at varying angles. Thus, the operation of checking the picker stick usually resulted in undue wear on the upper or top edge of the check strap, which strap was quickly distorted and beaten into a bevelled shape.

My present invention is directed to obviate the difficulties heretofore experienced in check strap construction, increasing wear and, hence, the usefulness of the check strap and to permit the check strap to be quickly and automatically conformed to the bevel or slant of the picker stick during its swinging actions on its pivot; and furthermore to present a plurality of bearing surfaces between the check strap and the contacting portion of the picker stick, thus eliminating uneven wear on the check strap and increasing its efficiency.

I carry out my present invention by providing means which will enable the check strap at the points of contact, where the picker stick strikes the same, to engage two or more portions of the check strap or to quickly conform the check strap to the angular inclined or bevelled position so as to present a full contacting surface between the check strap and picker stick.

Preferably, I carry out my invention either by dividing the check strap into a plurality of longitudinal strip-like portions or by dividing the check strap into articulated portions lengthwise of the strap, or by a combination of both.

Important advantages of my present invention are that I obtain longer life and wear and usefulness of the check strap, while maintaining the strap at full efficiency; a better checking of the shuttle in the box of the loom, saving power, and permitting the loom box to be run looser and, hence, with less friction, and providing a construction which will automatically and instantly permit the check strap to conform to the angle at which the picker stick strikes the check strap.

Furthermore, I am enabled by my present invention to present a wider and, hence, reinforced portion of the check strap at the point of contact with the picker stick, while permitting the ends

of the check strap to be of normal width for attachment to standard looms.

Furthermore, and an especially important feature of my present invention, is that I am enabled to form the wearing portions of the check strap which contact with the picker stick of expensive leather, with the end portions of less expensive material and to utilize relatively short lengths of each. This advantageous feature thus permits the longer life, wear, and usefulness to the check strap, as the more expensive and stronger leather takes up the shock and wear of the picker stick.

A still further and important feature of that portion of my invention utilizing a plurality of sections, viz., with the picker stick-engaging portion in independently movable strips, consists in a better checking of the picker stick by the successive engagement of adjacent strips, thus affording a progressive yielding checking action.

My improved structure results in a yielding and cushioning action, as first one strip or portion of the check strap is engaged by the picker stick and then the adjacent portion. Thus, by a progressive yielding checking action the wearing of the check strap and picker stick is greatly diminished and, hence, the life and usefulness of the check strap is correspondingly increased.

This particular feature of progressively absorbing the blow of the picker stick upon or against the check strap, as distinguished from the prior operations of permitting the full blow of the picker stick to be made against the check strap is, I believe, a distinct novelty in this art and not only cushions the blow, increases the wear, but also decreases the noise of the picker stick checking action.

This present application is a substitution and refiling of applicant's prior application Ser. No. 195,444, filed March 12, 1938.

Referring to the drawings illustrating preferred embodiments made by my novel process,

Fig. 1 is a fragmentary side view of a typical check strap attachment with a picker stick shown partly in outline;

Fig. 2 is a plan view, on the line 2—2 of Fig. 1, of the particular form of my check strap construction illustrated in Fig. 1;

Fig. 3 is a side view showing the three sections in position to be assembled;

Fig. 4 is an enlarged cross-sectional view on the line 4—4 of Fig. 3;

Fig. 5 is a plan view of a check strap showing the narrower end pieces;

Fig. 6 is a cross-sectional view on the line 6—6 of Fig. 3;

Fig. 7 is a cross-sectional view on the line 7—7 of Fig. 3;

Fig. 8 is a plan view of my articulated form of check strap without the longitudinal section construction;

Fig. 9 is a side view of a further modification illustrating longitudinal sections with a reinforced width;

Fig. 10 is a side view illustrating a plurality of longitudinal sections and with a reinforced central portion;

Fig. 11 is a side view of my improved check strap of uniform width throughout its lengths, and having the longitudinal section feature, and

Fig. 12 is a further modification illustrating a plurality of longitudinal slits interrupted lengthwise of the strap.

Fig. 13 is a fragmentary side view showing the operation of a typical check strap of the type illustrated in Figs. 9, 10, 11, and 12.

Referring to the drawings, 1 indicates a portion of the shuttle guide of a loom, 2 indicating the picker stick. A bracket 3 is secured to the side of the shuttle guide 1 by fastenings 4, with a bolt 5 extending thru a recess in the lower portion of the bracket 3 and adapted to engage the ends of the check strap between the head of a bolt 5 and nut 6. Preferably, a washer 7 is interposed between the nut 6 and the side of the bracket 3 around the recess thru which the shank of the bolt 5 passes.

This type of construction is adapted to retain any check strap in position to constitute a checking element for the picker stick during its operations of throwing and receiving the shuttle. In my present novel form of articulated check strap illustrated in Figs. 1 to 8, I form the central portion 10 of strong, thick, and wear-resistant leather, or similar material, and provide end pieces 11 and 12 which are pivotally secured to the adjacent end portions of the central strap 10 by rivets 14 and 15.

Each end piece has a slot 16 formed therein of appropriate length for adjustment and width to be engaged by the shank of the bolt 5 to hold and retain the same to the bracket 3 when the check strap is fitted in loop formation about the picker stick 2 and with its ends attached to the bracket. Preferably, and as shown in Figs. 1, 3, and 5, I form a longitudinal cut 20 throughout a substantial portion of the length of the middle or picker stick-engaging portion 10 of my articulated check strap, forming enlarged recesses 21 at each end to prevent tearing of the leather 10 beyond the ends of the cut 20. Preferably, also I form the openings to receive the rivet 14, as indicated at 22—22, thru the adjacent ends of the middle section 10 and the end pieces 11 and 12 of slightly greater diameter than that of the attaching rivet 14, and I fit in each of the sections metal grommets 24—24 to give a better wearing and pivotal action on the shank of the rivet 14. Such rivet 14 is thereupon assembled with its head 25 on one side and the opposite end 26 riveted over a washer 27, thus retaining the members in firm articulated union.

This arrangement permits the check strap when looped into operative position, as shown in Figs. 1 and 2, to automatically provide for the middle section 10 to quickly assume an angle or bevel corresponding to that at which the edge of the picker stick 2 strikes against it.

The angular sections allow considerable angular inclination to the middle section, and the upper and lower longitudinal portions of the

middle section 10 will "work" or shift, as shown at 30 and 31, Fig. 1, providing a still further angularity in the picker stick-engaging portion of the check strap, thus distributing the impact and strain over the entire surface of the check strap until it is beaten or formed into the exact angle at which the picker stick strikes it. A similar operation at the opposite edge or to the left, viewed in Fig. 1, also takes place when the picker stick is thrown forwardly during the shuttle-throwing action.

In Fig. 8 I have illustrated my improved articulated form of check strap with the middle section 35 uncut without any longitudinal slit, depending entirely upon the articulated end portions 11 and 12 to permit the picker-engaging portion 35 to assume a bevelled or angled position when the picker stick strikes it during its operation.

In Figs. 9 to 12 I have shown a still further modification wherein I have eliminated the articulated end portions, and I rely entirely upon the longitudinal slit or slits in the check strap to constitute means for the check strap automatically conforming to the bevelled or inclined position of the picker stick at points of contact therewith.

In Figs. 9 and 10 I have illustrated a reinforced construction along the middle portion, providing greater width and increased wear and longer life to the check strap, with the end portions of usual width to fit a standard machine to which it is attached.

Referring to Fig. 9, this form of check strap comprises a central section 40, preferably of greater width, as shown, than that of the end portions 41—41, which end portions contain the slots 16—16 to receive the attached bolt 14. A central slit 20 terminating in enlarged end openings 21—21 is also provided, and this form of my check strap thus permits a "working" of the upper and lower end sections to automatically conform to the bevelled or inclined position of the picker stick 2, as shown in Fig. 1, in connection with the operation of my articulated and slitted check strap construction.

In Fig. 10 I have shown a still further modification, wherein the middle portion 44 and end sections 45 constitute a check strap with a plurality of longitudinal slits 46, 47, and 48, each slit ending in enlarged openings 21 similar to those already described and for the purpose of preventing splitting of the check strap beyond the end of the longitudinal slits. Thus, in this form I provide a considerable number of longitudinal sections, presenting a series of strips against which the picker stick strikes, and a plurality of means providing a quicker and fuller inclination of the check strap in contact with the picker stick, as will be readily appreciated. Any desired number of such strip-like sections can be arranged in carrying out my invention.

In Fig. 11 I have illustrated a form of check strap wherein the check strap 50 is of uniform width throughout without the reinforcing, and greater width in the form shown in Figs. 9 and 10. In this form of check strap I provide the longitudinal slit 20 terminating in the tear-preventing openings 21 at each end of the cut 20, and with the bolt slots 16 also shown.

In Fig. 12 I have illustrated a still further modification wherein this form of check strap 55 is provided with a plurality of short cuts 56 and 57 lengthwise of the strap 55, each cut or slit preferably ending in enlargements 21—21, as is

preferable, and with the end portions provided with the attaching bolt slots 16.

In Fig. 13 I have illustrated a typical check strap of the type shown in Figs. 9, 10, 11, and 12, for example, the strap of Fig. 9 showing the operation of the two parallel strap portions during the oscillating and striping action of the picker stick 2. Thus, when the picker stick 2 is thrown to the right, viewed in Fig. 13, the back of the picker stick will strike and move the top of the upper part 40, shifting the same bodily to the right during the checking action afforded by my improved check strap; and thereupon the back of the picker stick 2 will strike the lower layer, as clearly shown in dotted lines at the right of Fig. 13, and thus add the lower strap portion to the checking action during the succeeding movement of the picker stick until the picker stick is brought to rest. Where a plurality of such sections are provided as in Fig. 10, the different layers will be successively brought into this checking action, as will be readily appreciated.

Thus, the various forms of my improved check strap as above described and as herein illustrated constitute means providing an automatic self-seating and bearing of the check strap and picker stick at the points of contact, enabling the check strap at said points to be instantly forced into substantial conformation with the angle or bevel at which the picker stick strikes the check strap. This automatic conformation feature may be either by the articulated construction alone or by one or more longitudinal cuts or slits alone, or by any combination of these two features.

Furthermore, the longitudinal cuts may be plural in number either widthwise or lengthwise; and the central part of my check strap, viz., the picker-engaging portion, may be reinforced by forming it of greater width, of greater strength, of greater wear-resisting capacity, and of any suitable material, such as leather, canvas, duck, or similar textile material, or rubber, rubber compounds, or any combination of rubber and textile material; while the end portions can always be of standard size to be attached to the present looms.

In my articulated form I can make the central or middle section of one grade or one material, with the short end portions of a different or cheaper grade; and by having a plurality of relatively short portions I can form my articulated check strap of relatively small or short pieces of leather or material instead of from large areas or sections, wherein the entire length of the check strap has to be cut, as is shown in the modifications of Figs. 9 to 12.

This important feature and advantage in the articulated form of my improved check strap is of great importance, permitting economy of

construction which much more than compensates for the slight added work of adding grommets 24 and rivets 14.

I believe that my features of the articulated check strap, as well as the additional feature of a plurality of longitudinal sections are broadly new, and I wish to claim the same herein both individually and in any feasible combination, and either with or without the reinforced central section.

This process of forming the articulated sections consists briefly in cutting out a plurality of longitudinal sections, and thereupon uniting them by pivotal means into the complete length of the check strap desired. Either in combination with the central portion of my articulated form of check strap, or in the form shown in Figs. 9 to 12, my process consists in cutting out the check strap and thereupon forming one or more longitudinally slitted sections positioned and arranged in the check strap so that when said strap is in service and loop formation, the slitted portion will be in position to engage the picker stick and automatically conform with the angle at which the picker stick strikes the check strap.

Thus, my present invention comprises a novel method of constructing and arranging check straps with capacity for automatically conforming those portions of the check strap engaged by the picker stick into the same angular or bevelled position as that of the picker stick when in contact therewith. The check strap itself has means permitting bodily movement to effect this self-seating and contacting operation automatically, either by the articulated construction or by the longitudinal slits, or both.

I claim:

1. As an improved article of manufacture, a picker stick check strap of the kind described having a central section and two end sections, pivotal connections between each end section and the adjacent end of the central section, said central section being divided by cutting a longitudinal slot throughout the mid-portion only of its length.

2. A picker stick check strap including a pair of strips united adjacent the ends of the strap and each adapted to form a substantially elliptical closed loop when the ends of the strap are in overlapping relation whereby when the strap is positioned on a loom with its ends in such relation and extending substantially horizontally, adjacent corresponding extremities of the major axes of the loops present concavely curved edges adapted for engagement at the opposite extremes of its travel by a picker stick extending within the loops.

BRECKINRIDGE T. CLARK.