No. 777,946. PATENTED DEC. 20, 1904.

W. ERDMANN & W. KOOTZ.

FLY NET.

APPLICATION FILED MAY 18, 1904.

NO MODEL.

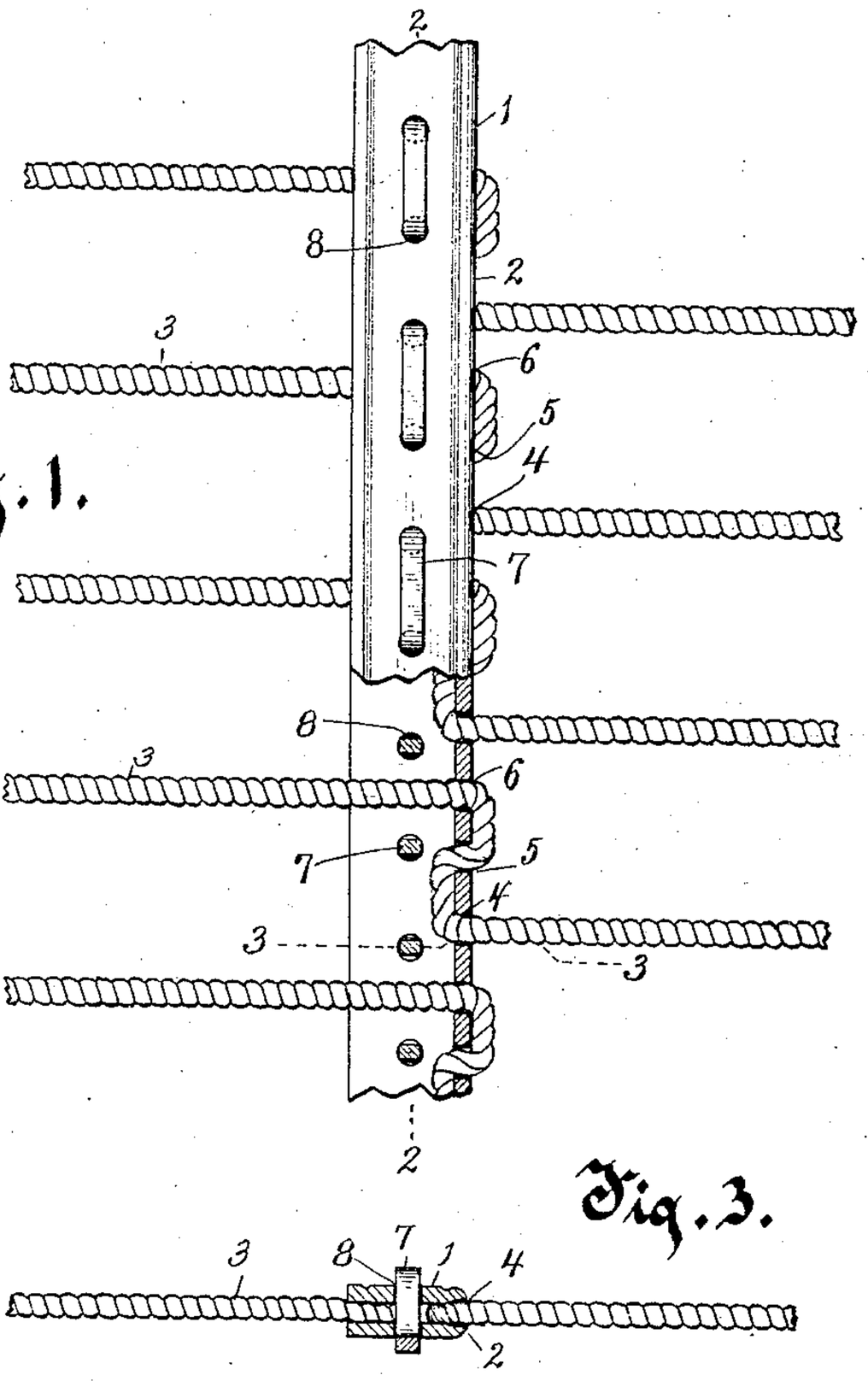

Fig. 1.

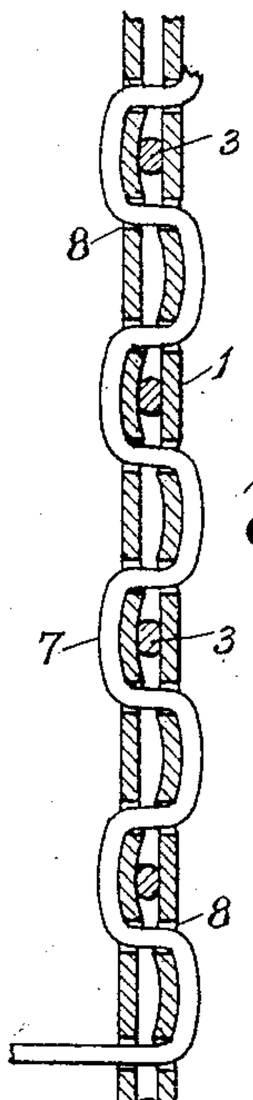

Fig. 2.

Fig. 3.

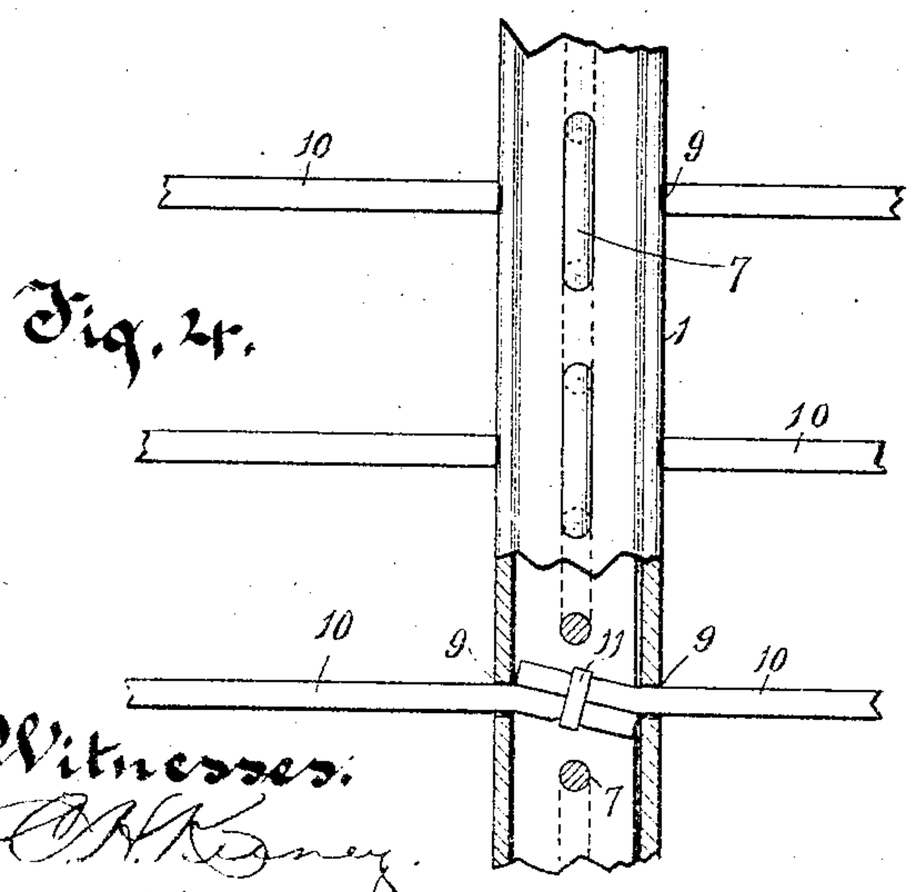

Fig. 4.

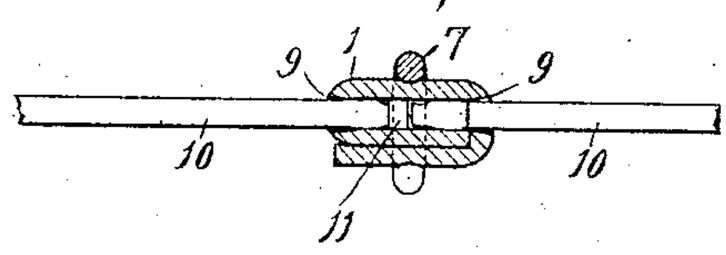

Fig. 5.

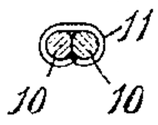

Fig. 6.

Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM ERDMANN AND WILLIAM KOOTZ, OF MILWAUKEE, WISCONSIN, ASSIGNORS TO GEM HAMMOCK & FLY NET COMPANY, OF MILWAUKEE, WISCONSIN, A CORPORATION OF WISCONSIN.

FLY-NET.

SPECIFICATION forming part of Letters Patent No. 777,946, dated December 20, 1904.

Application filed May 18, 1904. Serial No. 208,507.

To all whom it may concern:

Be it known that we, WILLIAM ERDMANN and WILLIAM KOOTZ, residing in Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Fly-Nets, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

Our invention relates to improvements in fly-nets adapted to be used on horses in warm weather to keep off flies and insects. Fly-nets for this purpose are made of flexible material, and consist of a large number of transversely-disposed strands and dangling lashes and longitudinally-strengthening and retaining bars.

The object of our invention is to provide an inexpensive net, but strong and durable in quality, easily made, and having the transverse strands and lashes securely fastened in and to the longitudinal bars, which therefor are of a novel and more efficient character than have heretofore been in use, and which bars furnish a protection for the strands and lashes, and also because of their firmer and less-yielding qualities and the manner of securing the strands and lashes thereto they keep the strands well separated from each other and the entire net in excellent form.

The invention consists of the fly-net, its parts, and combinations of parts, as herein described and claimed, or the equivalents thereof.

In the drawings, Figure 1 shows a fragment of a longitudinal bar of a fly-net and fragments of strands therewith, showing the construction of the bar and the manner of inserting and securing the strands therein. Fig. 2 is a longitudinal section centrally on line 2 2 of Fig. 1. Fig. 3 is a cross-section on line 3 3 of Fig. 1. Fig. 4 shows a fragment of a net, exhibiting changed forms of construction from the form shown in Figs. 1, 2, and 3. Fig. 5 is a transverse section of the form of construction shown in Fig. 4. Fig. 6 is a detail of the form of construction illustrated in Figs. 4 and 5.

In the drawings, 1 represents a fragment of a longitudinal bar of our improved fly-net. This bar is advisably of leather, cut in a strip of such width as to be folded together centrally longitudinally into a bar of half the full width of the strip. This forms a bar of an integral strip of material, but so folded together as to be of double thickness, providing a rounded or folded medial portion 2, through which medial portion a series of apertures is provided. The strands 3 may be of cord, of cotton, or wool or flax, or other flexible material, as shown in Figs. 1, 2, and 3, or may be of leather, as illustrated in Figs. 4, 5, and 6. To secure these strands 3 to the bars 1, each strand where it crosses a bar is run through an aperture 4 in the medial portion 2—say from the right toward the left, as shown in Fig. 1—and then the strand lies against the medial portion 2 of the bar on the inside to an adjacent aperture 5, through which it runs outwardly, and thence lies along on the outside of the medial portion of the bar to an aperture 6, through which it runs, and thence it extends between the two sides or layers of the bar toward the left. By this means each of the strands and all of them together are secured in the bar to some extent against shifting in the bar endwise; but to additionally and securely fasten the strands in place in the bar and to hold the two sides of the bar together against the strands we employ a binding-cord 7, which is passed back and forth in reverse directions through apertures 8 8, transversely through the two sides or opposing layers of the bar, and along alternately on the outside and on the inside of the bar, each alternate loop of this binding-cord straddling the strand 3 where it passes from the aperture 6 between the two layers or sides of the bar. By these means the strands are effectually secured in place in the bar against shifting endwise, and the doubled or folded bar is held securely folded upon itself and on the transverse cord.

In the form of construction shown in Figs. 4, 5, and 6 the bar 1 is made of a strip of leather of substantially three times the width of the completed bar and is folded along two

longitudinal lines thereof at substantially equal distances from the edges of the bar, which distances are also substantially the same as the distance between the folds, so that the bar as folded and thus completed is of three thicknesses, as shown in Fig. 5. This makes a bar of firmer structure than a bar is that is only of double thickness, like the bar shown in Figs. 1, 2, and 3. In the bar thus made of three thicknesses there are two folded or medial portions of the bar through which transverse apertures 9 9 are made. With this form of bar we have also shown another form of strand that may be employed in our improved net, consisting of leather strings 10 10, and these may be made of short strips or cut from small pieces of leather and may be spliced together by means of a small metal band 11, gripped, and thereby secured tightly against overlapping ends of two strings. These overlapping ends of two strings may be arranged to come on the inside of the bar between the two opposite apertures 9 9 in the opposite folds of the bar, and being secured together by the band 11 they will form an enlargement or boss on the strand that will be so large as not to be capable of passing through either one of the apertures 9 9, and the strand will thereby be held in position in the bar against accidental or improper shifting endwise. In this form of construction the binding-cord 7 is put through the three thicknesses of the bar in apertures therefor, and each alternate loop of this binding-cord straddles a strand of the net, as in the form of construction shown in Figs. 1, 2, and 3, thus binding the three layers of the bar together firmly and efficiently securing the strands in place in the bars.

Leather strands may be employed in the form of construction shown in Figs. 1, 2, and 3, as also cotton, linen, or wool strands may be employed in the form of construction shown in Figs. 4, 5, and 6, and the cotton, linen, or wool strands may be made of short pieces of string that are united in any suitable manner, even by means of metal bands, within the folds of the longitudinal bar; but it will be noted that in this form of construction no metal band or splicing-staple is employed in any outside position, where it will be exposed to the weather and liable to rust, and thereby be destroyed in a short time. The construction throughout is exceedingly pliable, while at the same time it is strong, reliable, and durable.

What we claim as our invention is—

1. In a fly-net, a bar of flexible material folded longitudinally and provided with apertures through the bar in and along the medial folded portion, transverse strands through the apertures in the folded portion of the bar and transversely thereof between the sides of the bar, and a binding-cord through the sides of the bar in reverse directions alternately and straddling each transverse strand crossing the bar.

2. In a fly-net, a bar of flexible material folded longitudinally and provided with apertures in and through the folds thereof, the sides or layers of the bar being of substantially equal width, strands through the apertures in the folds of the bar and extending between the layers of the bar across it, and a binding-cord passing alternately back and forth through the layers or sides of the bar and straddling each transverse strand that crosses the bar.

3. In a fly-net, a bar of flexible material folded longitudinally and provided with apertures through the bar in and along the folded line thereof, strands crossing the bar between the sides thereof each strand passing back and forth through three of said apertures in the fold, and means for securing the sides of the bar to each other in the folded condition of the bar.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM ERDMANN.
WILLIAM KOOTZ.

Witnesses:
ANNA F. SCHMIDTBAUER,
ALMA KLUG.