

(No Model.)

F. COOK.  
BALE TIE BAND.

No. 309,133.

Patented Dec. 9, 1884.

FIG 2

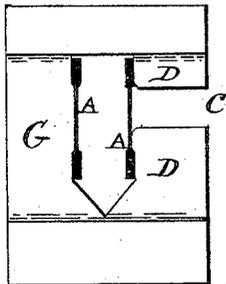


FIG 3

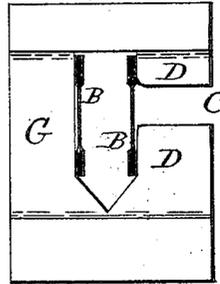


FIG 1

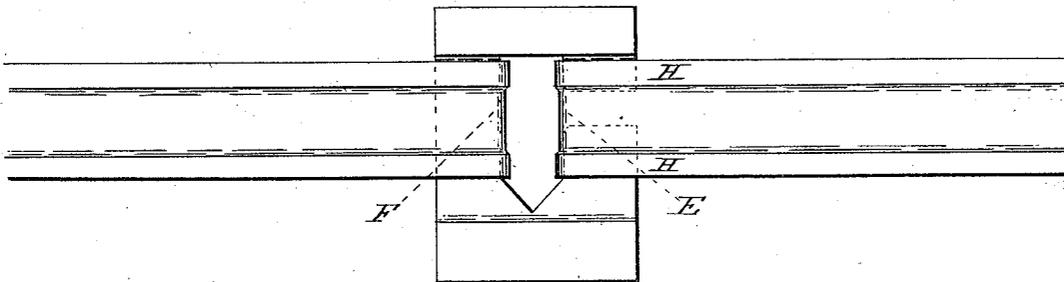


FIG 4

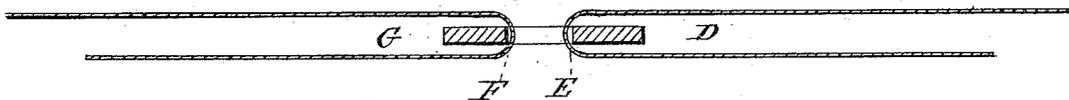


FIG 6



FIG 7



FIG 8



FIG 5



WITNESSES.

*Aug. Bernau,*  
*W. B. Murphy*

INVENTOR.

*Frederic Cook*

# UNITED STATES PATENT OFFICE.

FREDERIC COOK, OF NEW ORLEANS, LOUISIANA.

## BALE-TIE BAND.

SPECIFICATION forming part of Letters Patent No. 309,133, dated December 9, 1884.

Application filed October 13, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERIC COOK, a citizen of the United States, residing at New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and useful Bale-Tie Band, of which the following is a specification.

The object of my invention is to produce a bale-tie band that, when used in combination with the arrow bale-tie buckle, will be of lighter weight and equally as strong a tie as a tie made of flat bands of usual width and gage as heretofore used with the arrow bale-tie buckle. I attain this object by making the bands as shown in the accompanying drawings, in which—

Figure 1 is a plan view of looped ends of band and an arrow tie-buckle. Fig. 2 is a plan of an arrow tie-buckle, and shows cross-sections A A of band loops. The band-seats of buckle are shaped to fit the band. Fig. 3 is a plan of the arrow-buckle with usual straight band-seats, and shows cross-sections B B of band-loops. Fig. 4 is a longitudinal section through band-loops, and a buckle. Figs. 5, 6, 7, and 8 are various-shaped cross-sections of different bands.

On examination of the open slotted bar of the arrow tie-buckle it will be seen that a band when looped over that bar strains only on the bar each side of the open slot C, and that the portion of the band-loop opposite the open slot *c* has no metal on bar D to strain against. Therefore the entire strain of the bale is taken by only a portion of the band-loop—namely, on the portions each side of the open slot C.

I have found, on making experiments on the strength of the arrow tie-buckle and flat bands, that when the buckles are of the proper proportion and metal the weakest place is at the loop over the slotted bar D, which loop usually broke by pulling through the open slot C; or, in other words, the looped end of band E was cut away each side of the open slot C at from one thousand seven hundred to one thousand eight hundred pounds strain in a testing-machine. Experiments on same sized bands, looped into a solid-bar buckle, showed that the band-loops broke at from two thousand two hundred to two thousand four hundred pounds strain. Therefore, as the ar-

row-buckle is composed of a solid bar with looped end of band over it and a slotted bar with other end of band looped over it, the inference is that a flat band must be strong enough to stand about one thousand eight hundred pounds strain at slotted bar, and that the loop of the other end of band F over the solid bar G stands about four hundred pounds more strain than the loop E over slotted bar D, and that the band is unnecessarily strong at the solid-bar loop F, and at all other parts of the band.

I have endeavored to more nearly equalize the breaking strength of the two looped ends, keeping the looped end E at slotted bar D strong enough to stand a strain of one thousand seven hundred to one thousand eight hundred pounds, at the same time reducing the weight of the entire band, (by making a band of a peculiar-shaped section,) therefore the weight of the bundles of ties, (containing the same number and length of bands, as the present flat band now sold with the arrow-buckles,) so that I obtain several more bundles to a ton of ties, and as ties are now sold by the bundle a ton of ties of my improved bands will bring more money to the manufacturer if the bundles are sold at same price as the present flat-band tie; or, if sold at a reduced price per bundle, the consumer will get more ties for the same money.

The usual size of a flat band for arrow-buckles as hitherto used is fifteen-sixteenths of an inch wide by No. 18 gage, which breaks at loop of slotted bar at one thousand seven hundred to one thousand eight hundred pounds, as before stated. I effect the object of keeping same strength on my improved band at the weakest place, the loop E over slotted bar D, and at same time reducing the weight of the entire band, simply by rolling my bands about two gages thinner in the middle portion, and increasing the sides or edges about one gage, as illustrated by cross-sections of bands at Figs. 2, 3, 5, 6, 7, 8. The shape of section puts the greatest strength of the band at its two sides or edges, and reduces it in the middle portion, where the open slot C offers no resistance to the loop E when the strain is on the band, and where only metal enough is needed to unite the thickened sides H, that strain on the bar D each side of the open slot

C. I place the thickest metal of loop of band where the greatest strain comes, and reduce the thickness opposite the open slot C, where there is no resistance offered to the middle 5 part of loop.

These bands can be used with any buckles, but are especially valuable in combination with arrow-buckles, as before described.

What I claim, and desire to secure by Letters Patent, is—

1. A bale-tie band rolled of different gages.
2. The combination of the bale-tie band rolled of different gages with the arrow-buckle for the purpose of producing a light-weight tie of sufficient strength at looped end of band 15 over slotted bar, substantially as described.

FREDERIC COOK.

Witnesses:

AUG. BERNAW,  
W. F. MURPHY.