

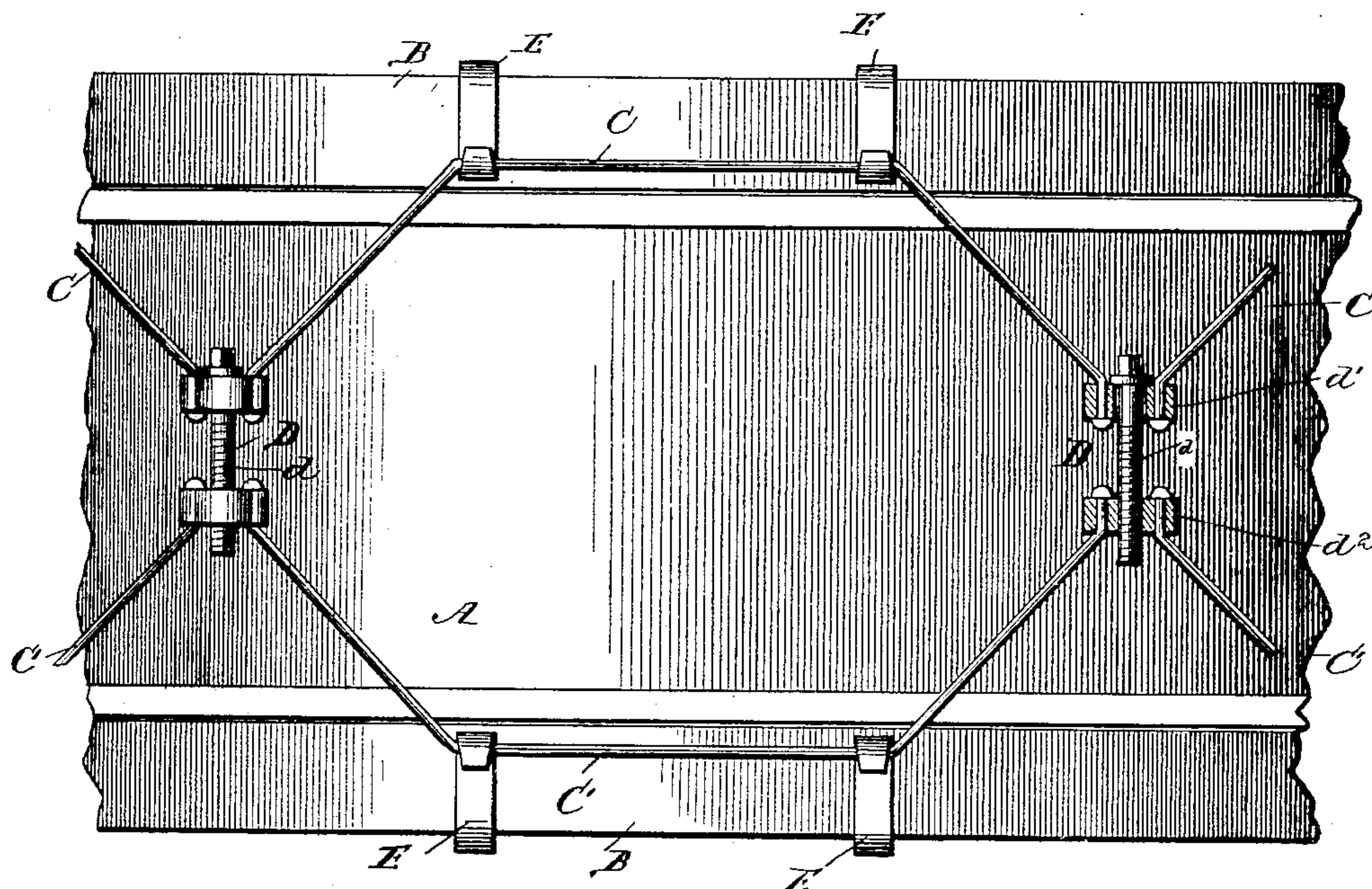
(No Model.)

G. VAN ZANDT.  
DRUM HEAD STRAINER.

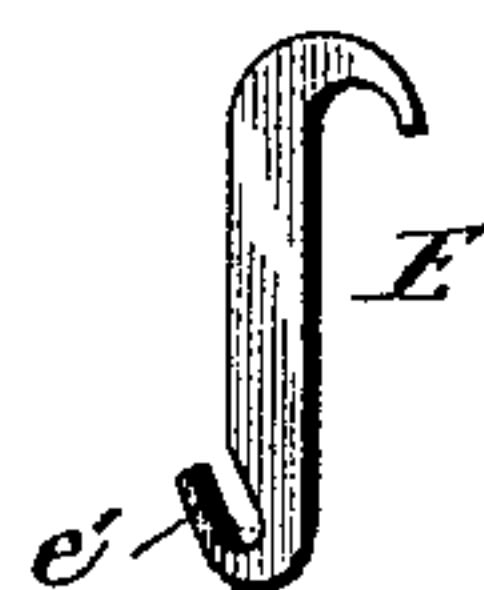
No. 387,023.

Patented July 31, 1888.

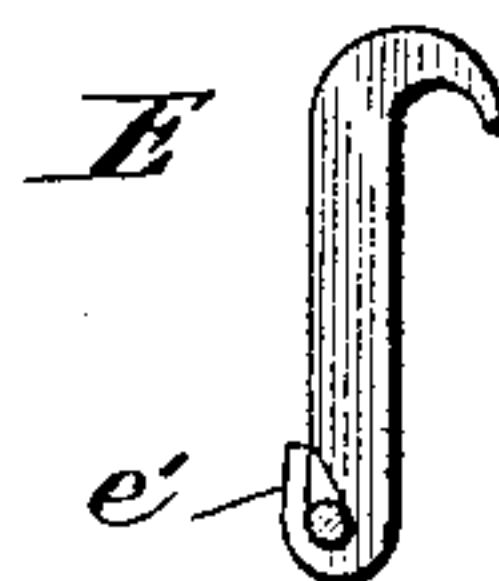
*Fig. 1.*



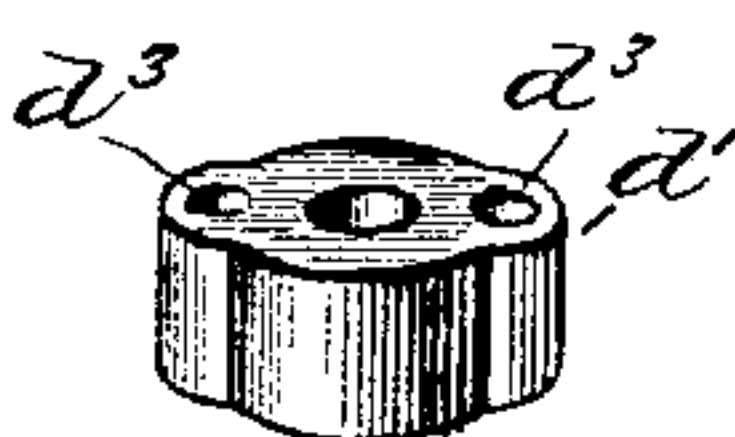
*Fig. 3.*



*Fig. 4.*



*Fig. 2.*



Witnesses.

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# UNITED STATES PATENT OFFICE.

GEORGE VAN ZANDT, OF CHICAGO, ILLINOIS.

## DRUM-HEAD STRAINER.

SPECIFICATION forming part of Letters Patent No. 387,023, dated July 31, 1888.

Application filed August 13, 1887. Serial No. 246,921. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE VAN ZANDT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Drum-Head Strainer, of which the following is a specification.

This invention relates to an improvement in drum-head tighteners or strainers in which straining-wires are employed in place of a cord carried back and forth about the drum, and the tension upon the heads regulated by tension devices capable of being adjusted in length for the purpose of exerting the required strain upon the hoops through the medium of the straining-wires.

The more prominent objects of my invention are to provide for an even distribution of strain throughout the entire straining or tightening device; to avoid any shifting about or change in position of the component parts of the straining device during service; to facilitate and insure the application of an equal degree of strain or tension at several determinate points around the drum-heads; to reduce the adjustable tension devices both in weight and number; to avoid such unevenly-distributed strain as might cause the cracking or tearing of the parchment heads; to simplify the construction and generally improve the appearance of drum-head strainers or tighteners, and to provide certain novel and improved details, all tending to increase the efficiency and general serviceability of such devices.

To the attainment of the foregoing and other useful ends my invention consists in matters hereinafter set forth, and particularly specified in the claims.

In the drawings, Figure 1 represents in side elevation a portion of a drum with so much of a straining or tightening device applied thereto as is necessary to illustrate my invention. Fig. 2 represents, in perspective, one of the parts of the adjustable tension device. Fig. 3 represents one of the hangers preparatory to applying the wire thereto. Fig. 4 represents the hanger with its lip or jaw clamped upon the wire.

In said drawings, wherein a portion of a drum is represented, A indicates the body, and B the hoops of such instrument.

The tightening or straining device comprises a set of connected loops arranged in continuous series around the drum, and consisting each of

a couple of wires C and C', having their terminals permanently attached to adjustable tension devices. These tension devices serve to connect the loops together in series, and are capable of adjustment in length in order to determine the extent to which it is desired the parchment heads of the drum shall be stretched. The contraction in length of the tension devices tends to contract the loops in width—that is to say, to draw the two wires of each loop toward one another. To render such contraction available for tightening the drum-heads, the wires forming these loops are connected with the hoops by hangers or attachments arranged at intervals about the drum and disposed intermediate of the tension devices. As a means for connecting the loops in series, I provide a set of two-part adjustable tension devices, D, with the two parts of each tension device connected together by a light bolt,  $d$ , which can be turned by a key or wrench, so as to vary their distance from one another. The two parts of any one of these adjustable tension devices generally resemble one another, with the exception that the one part or member,  $d'$ , is fitted upon the unthreaded shank of the bolt as a loose collar, while the other part or member,  $d''$ , is fitted upon the threaded end portion of the bolt as a nut, to the attainment of which end the block or piece  $d'$ , constituting the collar, has a smooth bore, while the bore of the block or piece  $d''$ , which constitutes the nut, is threaded, as shown by the adjustable tension device to the extreme right in Fig. 1. The collars  $d'$  and the nuts  $d''$  of the several adjustable tension devices are each provided with two small wire-receiving bores,  $d^3$ , as in Fig. 2, arranged at opposite sides of and parallel with the centrally-arranged bolt-receiving bore. The ends of the wires are inserted through these small wire-receiving bores, and the terminals of the wires are riveted or headed, so as to hold the wires in permanent and rigid connection with the parts of the tension devices to which they are allotted.

As hereinbefore mentioned, each loop is divided into two wires, C and C', the wires C being all attached by connections to the hoop at one end of the drum, while the wires C' are all attached by similar connections to the hoop at the opposite end of the instrument, the connections between the wires and the hoops being at points between the terminals



of the wires. By such arrangement the adjustable tension devices serve as means for connecting together the loops in series, the adjacent terminals of the wires C of any two adjoining loops being permanently attached to a collar,  $d'$ , while the corresponding terminals of the wires C' of such loop are permanently attached to the nut  $d^2$  of such adjustable tension device. The bolt of the tension device is therefore, so to speak, balanced between two loops, it being seen that each tension device is connected with four wire terminals representing lines of draft radiating from such device at four angles of proximately forty-five degrees each. The extreme adjustment of the tension devices for the purpose of tightening the drum-heads will therefore have no tendency toward bending the bolts, since the strain is evenly distributed, and hence comparatively light bolts can be used. It will also be seen that since the wire terminals, as hereinbefore explained, connect with the collar and also with the nut at opposite sides of the axis of the bolt, the tendency to twist the wires when the bolt is turned for adjusting the nut will be avoided.

As a means for connecting the loops with the hoops of the drum, I provide connecting devices or hangers E, preferably four for each loop, so that each wire length C will be connected with one of the hoops by two of such hangers, while each wire length C' will be connected by the like hangers with the opposite hoop. These hangers are at their outer ends bent into ordinary hook form to catch upon the edge of the hoop in substantially the same way that the outer ends of the double hooks heretofore provided for use in connection with a cord carried back and forth between the hoops have been employed. The inner ends of the shank or body portion  $e$  of each one of said hangers is tapered in thickness and primarily bent to provide a temporary hook, as in Fig. 3, wherein the wire can be caught; but after the wire has been caught thereon the bent-up lip  $e'$ , at the inner end of the hanger, is by hammering or otherwise suitably-applied force closed and clamped upon the wire, so as to hold the same in rigid or permanent connection with the hanger, as shown in Fig. 4.

The permanent connections between the loops and the hangers prevent the latter from shifting in position along the hoops, in which way the strain upon the hoops, and consequently the tension upon the parchment heads, will at all times during service be upon fixed predetermined points, and thus avoid undue strain at any one side of either head. In addition, both to such advantages and to the obviously neat and symmetrical appearance afforded by stringing each of the two wires of a hook upon two hangers, I find that the strain is in general more evenly distributed and that the hangers set more accurately in proper position, it being observed that the combined result of each pair is a more extended bearing upon the hoop and a disposition on the part of one hanger subject to a pull in one direc-

tion from one of the tension devices to resist a like pull in a contrary direction upon the other hanger. The employment of two hangers for each wire-length also permits the loops to be made somewhat longer than if but one hanger were used, and hence lessens the required number of adjustable tension devices D.

In conclusion, I may state that I regard the feature of a drum-head strainer or tightener involving a set of loops each comprising a pair of wires, C and C', and all connected in continuous series by intervening adjustable tension devices to which the terminals of the wires are secured, as an improvement in such devices irrespective of the particular construction of tension device herein shown, it being understood, however, that in specifying an adjustable tension device a tension device capable of both contraction and expansion in length is referred to in contradistinction to the devices heretofore used in connection with a cord strung around the drum; also, that the particular construction of tension device herein shown, in connection with the particular mode of attaching the terminals of the wire permanently and rigidly to the nut and collar of such tension device, constitutes a further feature of improvement.

What I claim as my invention is—

1. In a strainer or tightener for drum-heads, a set of loops each comprising a pair of wires, C and C', and all connected in continuous series by intervening adjustable tension devices to which the terminals of said wires are secured, substantially as and for the purpose set forth.

2. In a strainer or tightener for drum-heads, an adjustable tension device consisting of a collar,  $d'$ , and a nut,  $d^2$ , both applied upon a bolt,  $d$ , combined with two straining-wires, C, connected with one hoop and having their terminals permanently and rigidly attached to the collar, respectively, at opposite sides of the bolt, and two straining-wires, C', connected with the other hoop and having their terminals permanently and rigidly attached to the nut likewise at opposite sides of the bolt, substantially in the manner and for the purpose described.

3. In a strainer or tightener for drum-heads, a set of loops each comprising a pair of wires, C and C', and all connected in continuous series by intervening adjustable tension devices, combined with two sets of hangers engaging both the hoops and the wires, and arranged, substantially as described, with two hangers for each wire, for the purpose specified.

4. In a strainer or tightener for drum-heads, a set of wire loops connected in continuous series, combined with hangers E, attached to the hoops and permanently clamping the wires of the loops, substantially as described.

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Witnesses:

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