

(No Model.)

J. S. NEWELL & J. O. BROWN.

TREE PROTECTOR.

No. 383,824.

Patented May 29, 1888.

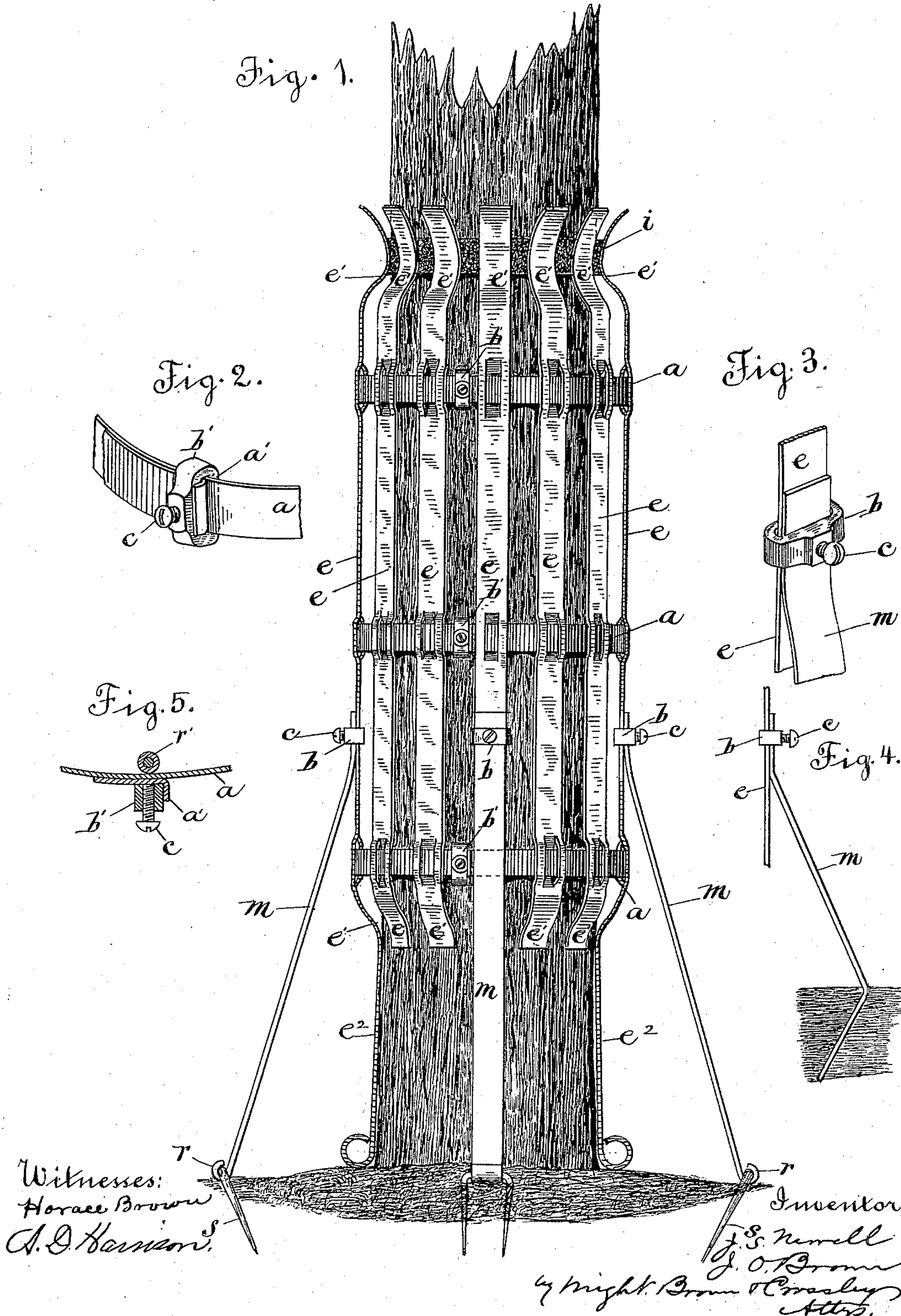
Fig. 1.

Fig. 2.

Fig. 3.

Fig. 5.

Fig. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES S. NEWELL AND JAMES O. BROWN, OF BOSTON, MASSACHUSETTS.

TREE-PROTECTOR.

SPECIFICATION forming part of Letters Patent No. 383,824, dated May 29, 1888.

Application filed January 20, 1887. Serial No. 224,879. (No model.)

To all whom it may concern:

Be it known that we, JAMES S. NEWELL and JAMES O. BROWN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Tree-Protectors, of which the following is a specification.

This invention relates to tree-protectors composed of a series of metal slats strung upon hoops which encircle the tree, the ends of said hoops being overlapped and connected by frictional devices, so that the overlapping ends can slip on each other, and thus permit the hoop to enlarge with the tree, as fully described in the application of James O. Brown, one of the present applicants, filed December 13, 1886, Serial No. 221,443.

The present invention has for its chief object to provide a protector of the class described adapted to be applied to and firmly engaged with small trees or saplings, and also to expand with the growth of the tree until the latter attains a large size.

The invention also has for its object to improve the construction of the expansible hoops so that they will expand more easily than heretofore.

To these ends our invention consists, first, in a tree-protector of the class above described having the ends of its slats bent or curved inwardly, to bear with a yielding pressure on a tree-trunk of considerably less than the diameter of the protector-hoops when the latter are contracted to their minimum size, said bent ends holding the protector firmly in place and enabling it to yield by their outward bending before the hoops are expanded.

The invention also consists in a hoop, clamp, or holder having an anti-friction roller, all of which we will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a side view of our improved protector applied to a tree. Figs. 2 and 3 represent perspective views of details. Fig. 4 represents a modification. Fig. 5 represents a sectional view of the hoop, clamp, or holder.

The same letters of reference indicate the same parts in all the figures.

In the drawings, *a a a* represent the expan-

sible hoops of the tree-protector, each composed of a piece of strap-iron the ends of which are overlapped and passed through a holder, *b'*, having a set-screw, *c*, which clamps said ends together and permits them to slip upon each other. One of said ends is bent to form a lip, *a'*, bearing against one side of the holder *b'*, as shown in Fig. 2.

e e represent the slats, which are strips of metal cut and bent at suitable intervals to form slots and loops adapted to receive the hoops *a*, substantially as described and shown in the Brown application above referred to, the slats being strung upon the hoops in a manner that will be readily understood by reference to Fig. 1. The protector thus constructed will expand with the growth of the tree by the slipping of the overlapping ends of the hoops.

In carrying out our present invention we bend or curve the ends of the slats inwardly, thus forming inwardly-projecting springs *e'*, which are adapted to bear with a yielding pressure on a tree of considerably less than the minimum diameter of the hoops *a*. It will be seen that these springs or bent ends bearing against a small tree or sapling hold the protector firmly in place and prevent it from moving or rattling about, thereby not only giving the tree and protector a neat and symmetrical appearance, but also preventing the tree from being rubbed and injured by movement of the protector against or upon it.

The spring ends yield as the tree expands by growth until the tree fills the hoops *a*. After this the hoops yield, so that the same protector is adapted to serve a tree from its earlier stages until it attains a considerable size.

i represents a band or packing of medicated flax, wool, or other material, ordinarily used to prevent the passage of crawling insects up the trunk of the tree. Said band is held in place by the springs, and may be placed wholly within said springs, as shown, or interwoven therewith. The band or packing may be used wholly as a means for preventing the ends of the slats from chafing the young and tender bark of the tree.

m m represent metal strips or braces which are secured to the slats *e* by clamps composed of slotted holders *b*, and set-screws *c*, like the holders *b'* and their set-screws above described.

The lower ends of said braces are secured to the ground and their upper ends laid against the slats *e*, and the holders *b* are moved down upon said slats until said holders receive the upper ends of the braces, when, by screwing in the set-screws *c*, the braces are made fast to the slats. The holders *b* slide loosely on the slats, so that the braces may be secured at any desired point. The holders are placed on the slats before the latter are placed on the hoops.

The braces may be formed with eyes *r* at their lower ends to receive staples *s*, which are driven into the ground, as shown in Fig. 1; or the braces may be driven directly into the ground, preferably at an angle, as shown in Fig. 4, the part of the brace above the ground being bent inwardly toward the tree after the lower end is driven into the ground.

It will be seen that the described form of the slats, whereby they are caused to bear on the trunk at both ends of the protector, enables the protector to co operate to good advantage with the braces, there being no loose motion of the protector on the tree, as there would be if the protector were too large to closely fit the tree at its ends. The braces are independently adjustable, so that they may be set at different heights to conform to inclined surfaces.

The lower ends of the greater number of the slats *e* are here shown as elevated above the ground, two of the slats being shown as having downwardly extended lower ends, *e*² *e*², adapted to bear on the ground. It will be understood, however, that all the slats may be of the same length, and that the lower ends may be all formed like the upper ends.

We prefer to secure the slats to the central hoop, *a*, by cutting ears *u* on said hoop, and bending said ears outwardly into the slots in the slats, or by riveting the slats to the hoop, or by any other suitable means, leaving the slats free to slip laterally on the upper and lower hoops. The object of this construction is to keep the slats at a substantially uniform distance apart, and at the same time enable them to be farther apart at their lower than at their upper ends, as would be required when the tree has a considerable taper.

To facilitate the expansion of the hoops *a*, we may provide the clasp or holder *b* with an anti-friction roller, *r*', forming a bearing against which the hoop is pressed by the set-screw *c*.

It will be seen that the inwardly-bent ends of the slats enable the hoops to be adjusted and the slats spaced to fit a much larger trunk than one which will fill the space surrounded by the bent ends when the latter are in their normal position. Consequently the slats remain uniformly spaced and no gap is formed between them by the expansion of the hoops for a comparatively long period, while without the bent ends the hoops would have to be adjusted to fit a small trunk, and a gap would be immediately commenced by the growth of the trunk, so that the protector would soon be rendered almost useless.

We claim—

1. A tree-protector composed of a series of expansible hoops adapted to encircle the tree and constructed to be expanded by the growth of the tree, and a series of metal slats secured to said hoops and having their ends bent inwardly to form yielding springs adapted to bear on the trunk of a sapling and yield to the enlargement thereof until said trunk fills the hoops and straightens out the bent ends of the slats, the protector being adapted to yield, first, by the outward bending of the ends of its slats and, secondly, by the expansion of its hoops, as set forth.

2. The tree-protector hoop composed of the metal strap having overlapping ends, and the holder *b*', having a clamping device, and an anti-friction roller, *r*', supporting the hoop, as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 10th day of January, 1887.

JAMES S. NEWELL.
JAMES O. BROWN.

Witnesses:

C. F. BROWN,
A. D. HARRISON.