H. W. KING.

Barrel-Trussing Machine.

No. 211,914. Patented Feb. 4, 1879.

FIG. 1

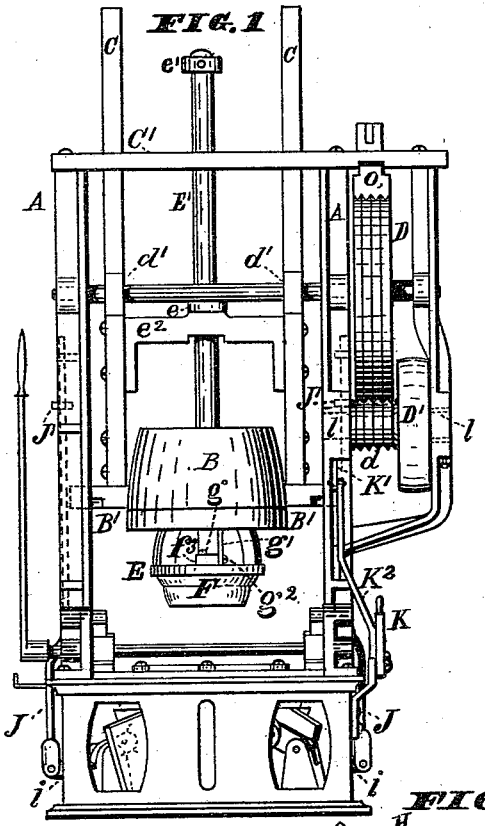


FIG. 2

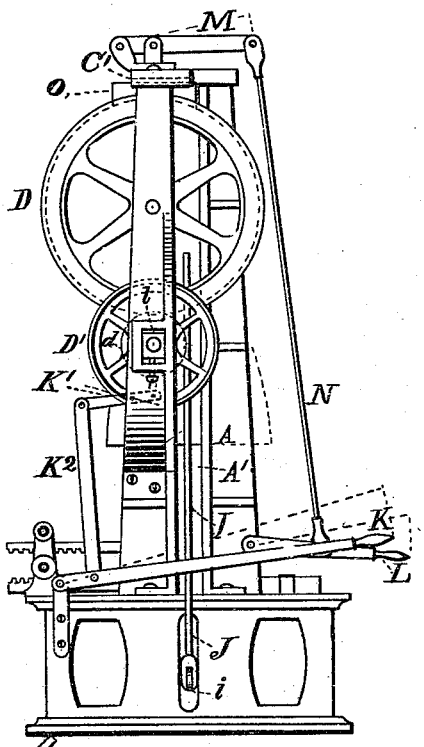


FIG. 3

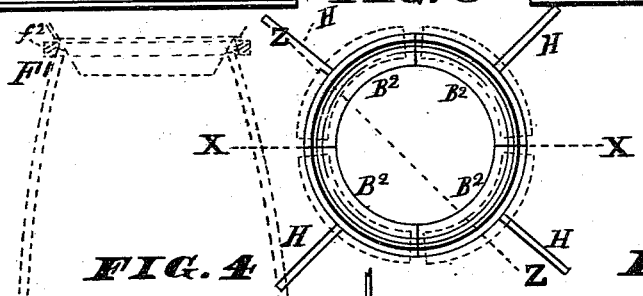


FIG. 4

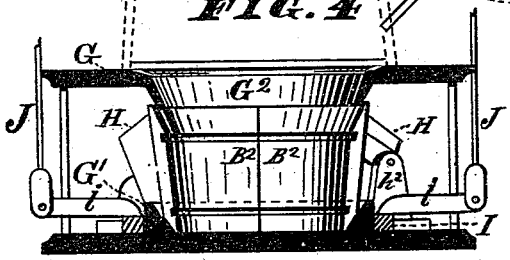


FIG. 5

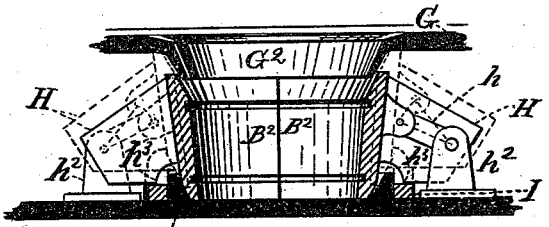
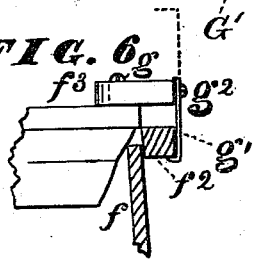


FIG. 6



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IMPROVEMENT IN BARREL-TRUSSING MACHINES.

Specification forming part of Letters Patent No. **211,914**, dated February 4, 1879; application filed September 9, 1878.

To all whom it may concern:

Be it known that I, HORACE W. KING, of Alden, in the county of Erie and State of New York, have invented certain new and useful Improvements in Barrel-Trussing Machines, which improvements are fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a front view of the machine complete, and Fig. 2 a side elevation of the same. Fig. 3 represents a plan or top view of the expanding and contracting bed; Fig. 4, a central transverse section through the base of the machine, cutting the lower bed through line X X, Fig. 3. Fig. 5 is a central section cut diagonally through the base and through the lower bed in line Z Z, Fig. 3; and Fig. 6 represents a portion of an annular head, around which the upper ends of the staves are set, and a side elevation of the device for holding the truss-hoop, showing, also, a section through a part of the truss-hoop and the upper portion of a stave.

This machine is an improvement on the invention for which Letters Patent No. 200,733 were granted to me February 26, 1878. Its object is to provide the means for rapidly setting up the staves of a barrel and applying the truss-hoops thereto; and it consists, first, in an annular head provided with devices for carrying the truss-hoop, and with a conical or tapering portion, between which and the hoop the upper ends of the staves are placed when set up, the arrangement being such that by a downward movement of said head the truss-hoop is partly forced over the upper ends of the staves, while the conical portion forces the staves outward, so as to form a true circle within the truss-hoop. The conical portion also serves to center the barrel truly.

The second part of my invention consists of a separable bed having grooves to receive the lower truss-hoops, and sections provided with pieces projecting outwardly and held to stationary supports by pivoted arms, the lower ends of the sections resting in a conical rim or depression, and the upper ends against the outside of an annular downwardly-projecting conical rim, in combination with a ring or annular plate, and a suitable means for connecting it to the movable truss-hoop driver, as will be more clearly hereinafter shown, the combination being such that as the truss-hoop is forced partly over the ends of the staves they are forced outward, so that their edges will be even and their outer surfaces form a true circle against the inner sides of the truss-hoop, and so that the sections of the separable bed will not be driven apart by the power required to force the barrel into the lower truss-hoops, but, on the contrary, will be held closer together by such action.

The third part of my invention relates to the means employed to regulate the movements of the upper or movable truss-hoop driver; and it consists in the combination of a movable truss-hoop driver, a rack-and-pinion movement for actuating it, and a system of grooved friction-gearing with a brake and suitable levers for operating them, whereby the downward movement of the truss-hoop driver may be instantly arrested at any time.

In said drawings, A represents the frame of the machine; B, the upper or movable truss-hoop driver, consisting of a hollow cone having offsets for driving the truss-hoops, as shown in my said patent. It is kept in position in the frame A by means of the projections B^1, which pass into openings A′, and is kept in a vertical position by the rack-bars C, which are rigidly fastened to B^1 and pass through the transom C′, thereby allowing a free vertical movement of the driver B. Motion is imparted to it by the grooved friction-gear D *d*, pinions *d*′, and driving-pulley D′.

E represents the annular head, supported by the shaft E′, frame e^2, and transom C′. $e\ e^1$ are adjustable collars to limit its motion.

F represents the conical portion projecting downward therefrom, against the tapering sides of which the upper ends of the staves *f* are set, (see Fig. 6,) the lower ends resting on the top of the base G, as shown by dotted lines F′, Fig. 4. f^2 is the truss-hoop, which is only partly forced over the upper ends of the staves by the head E, as in Fig. 6, the head B afterward forcing it in place. The truss-hoop f^2 is held in place by the holders f^3, which are pivoted to E at *g*, so as to be readily turned outward, and the spring-hook g^1, (which is

pivoted to f^3 at g^2,) so as to be easily turned down to catch and hold the truss-hoop, as shown in Fig. 6. There are three or more of the holders f^3, and the hoop is released by springing them outward, after which they are turned up out of the way, as in Fig. 1.

The separable bed (see Figs. 3, 4, and 5) is made in sections B^2, the lower parts of which are set in the circular tapering depression G^1, and the upper parts, which are beveled, as shown, are set against the outside of the tapering rim G^2. The letters H represent pieces projecting radially from the sections B^2, and rigidly fastened to them, and by which they are each jointed to an arm, h, and to a stationary support, h^2, as in Fig. 5. The inner lower parts of H rest on a hoop, I, at h^3. The hoop I encircles G^1, and is provided with pieces i, (see Fig. 4,) projecting out from each side, to which are connected the arms J, (see Figs. 1, 2, 4,) which are provided with collars J′, (see Fig. 1,) fastened to each.

It will be seen that as the truss-hoop driver B moves up and the parts B^1 reach the collars J′, a further movement will lift the arms J, hoop I, and the sections B^2 with their connections, so as to raise and separate or expand the separable bed, as shown in Fig. 5.

The upward movements of the driver B are controlled by the levers K K^1 and connecting-arm K^2, the driving-pulley and small friction-gear being held by adjustable boxes l, so that by means of said levers the friction between the grooved gears D and d may be increased or diminished, and consequently the upward movement of B may be arrested instantly when required. The downward movement of B is controlled by the levers L M, connecting-rod N, and grooved brake O, the object being to stop it in its descent at any time, or hold it at any point while the driving-pulley is running, and the lever K is lifted so that the friction-gearings are sufficiently apart to prevent wear, all of which will be readily understood by reference to Fig. 2. The brake and its parts are so constructed that the weight of the levers L M is sufficient to hold the driver B at any point.

As the driver B moves up and down, the separable bed opens and closes automatically—opening to receive the truss-hoops or to let them out with the barrel, and closing or contracting so as to receive and inclose the truss-hoops, and hold them while the barrel is being trussed or forced into them.

It will be noticed that the staves are set up (in this machine) on a level bed, and the mechanism is such that, as set up, they are level and truly centered, and are not forced out of place while being contracted, or while the truss-hoops are being driven; consequently a leveling device is not required after the truss-hoops are on.

I claim as my invention—

1. The combination, in the driver, of the annular head E, lower tapering portion, F, and devices for supporting the truss-hoop f^2, constructed and arranged substantially as and for the purpose described.

2. The truss-hoop driver B B^1, arms J, hoop or plate I, and rims G^1 G^2, in combination with the separable bed, connected to stationary supports, substantially as specified.

3. The combination of the vertically-reciprocating frame carrying the driver, the shaft, with pinions d', gearing into racks on said frame, and carrying the friction-pulley D, with the friction-pulley d, and brake O, all operating substantially as and for the purpose set forth.

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