(Model.) 3 Sheets—Sheet 1.

J. GREENWOOD.

BARREL LEVELING AND TRUSSING MACHINE.

No. 246,759. Patented Sept. 6, 1881.

Fig. 1.

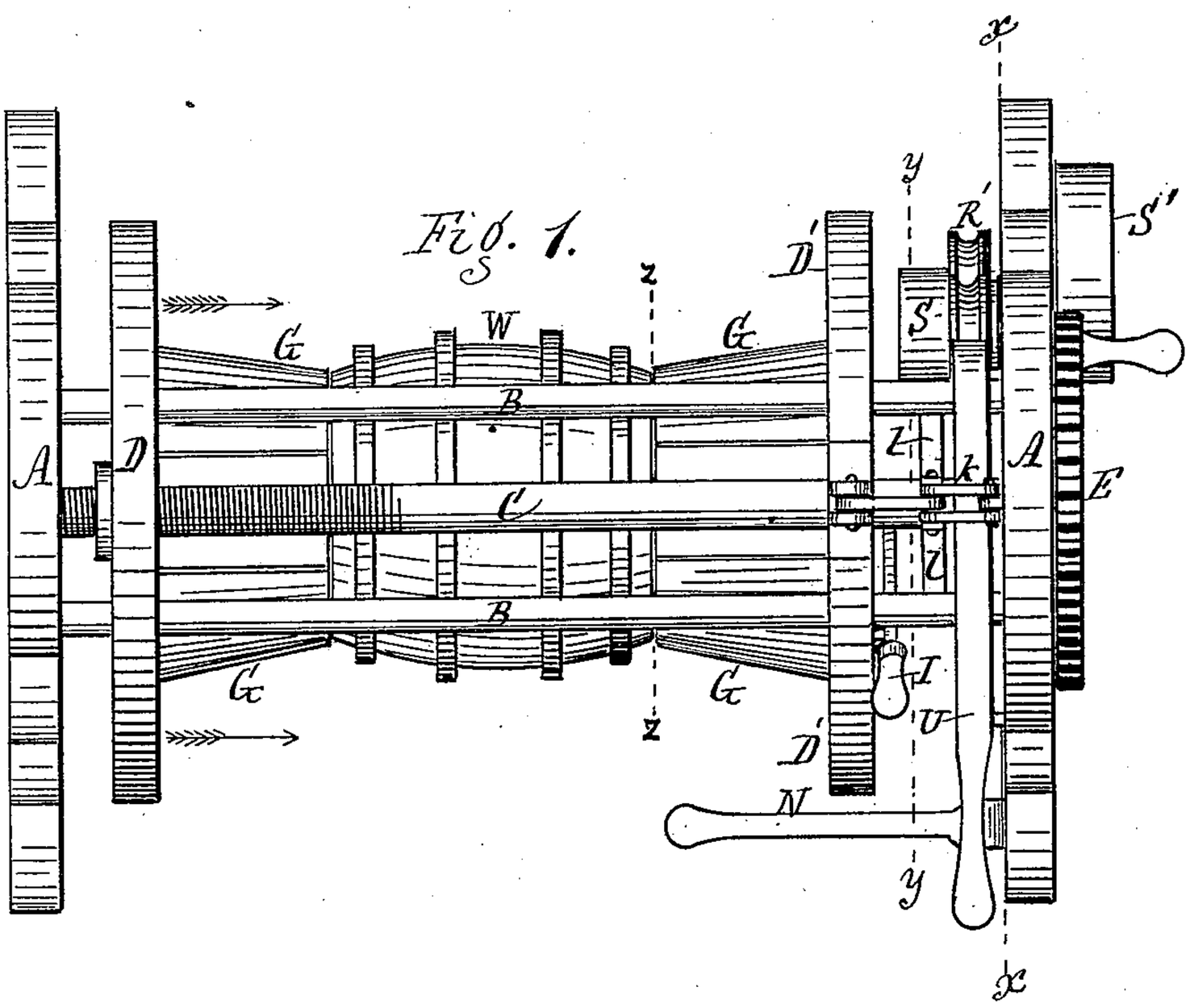
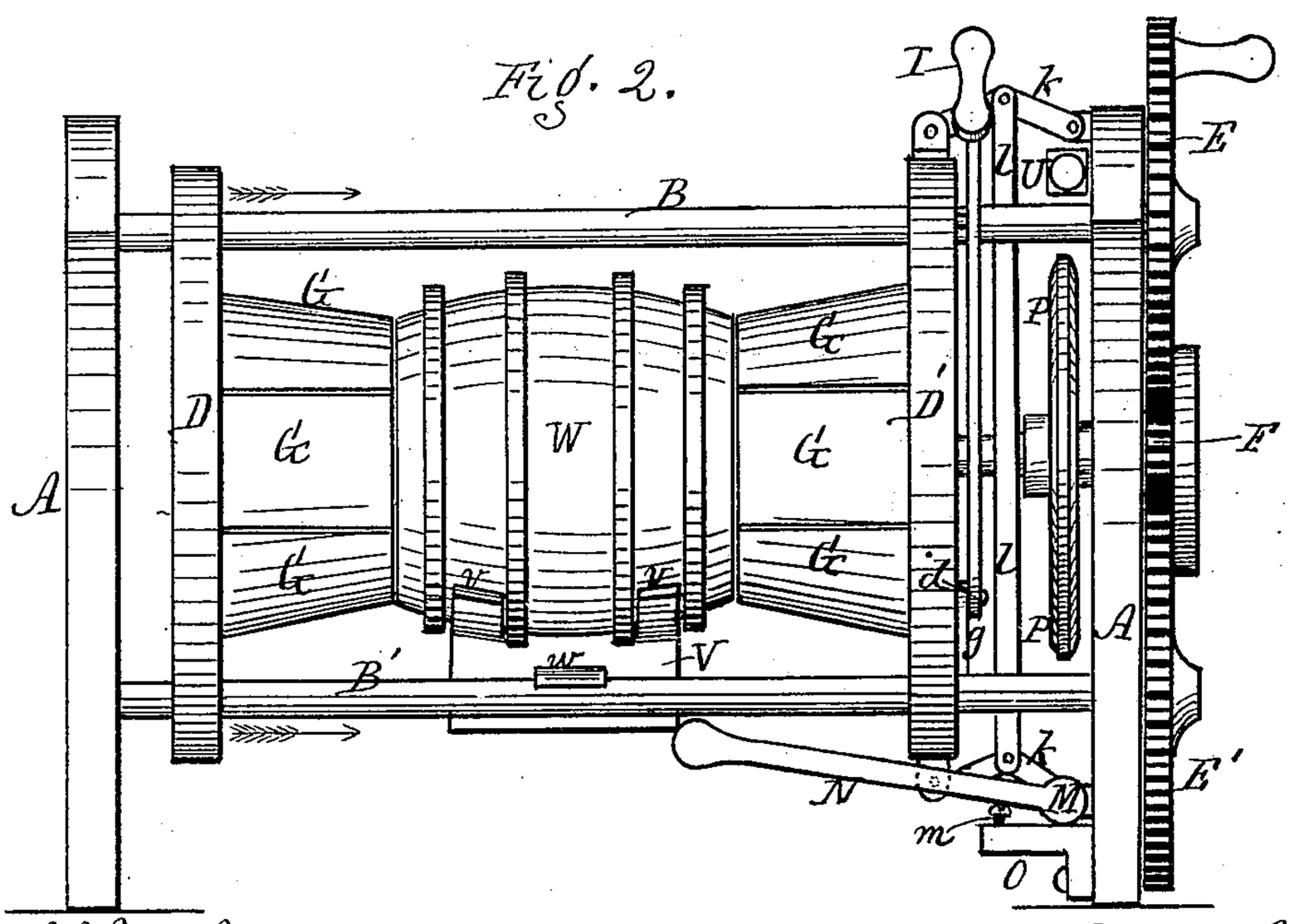


Fig. 2.



Attest.
Jacob Spraker
Geo. H. Graves

Inventor.
John Greenwood,
per R. F. Osgood.
Atty.

(Model.) 3 Sheets—Sheet 2.

J. GREENWOOD.

BARREL LEVELING AND TRUSSING MACHINE.

No. 246,759. Patented Sept. 6, 1881.

Fig. 3.

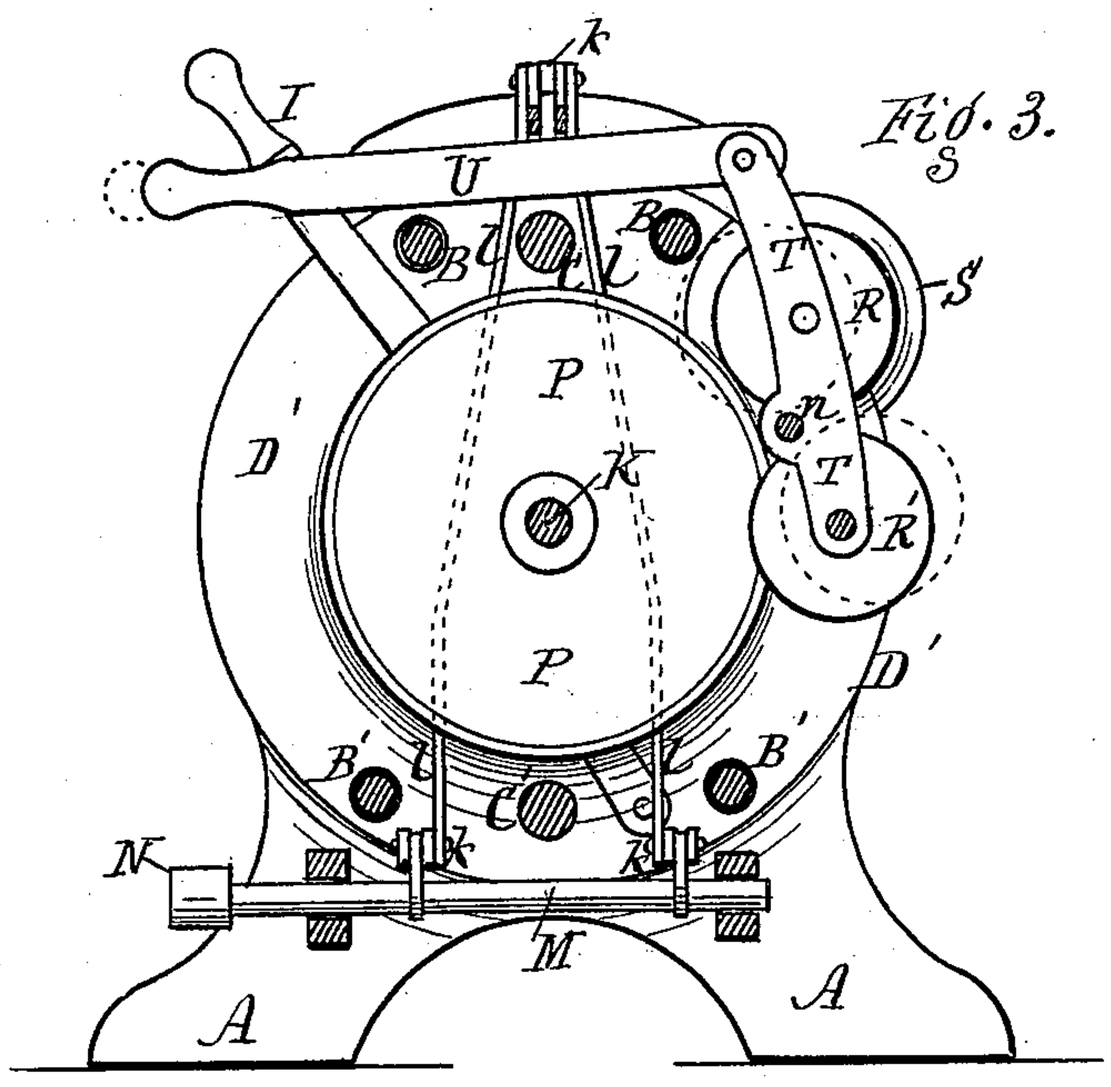
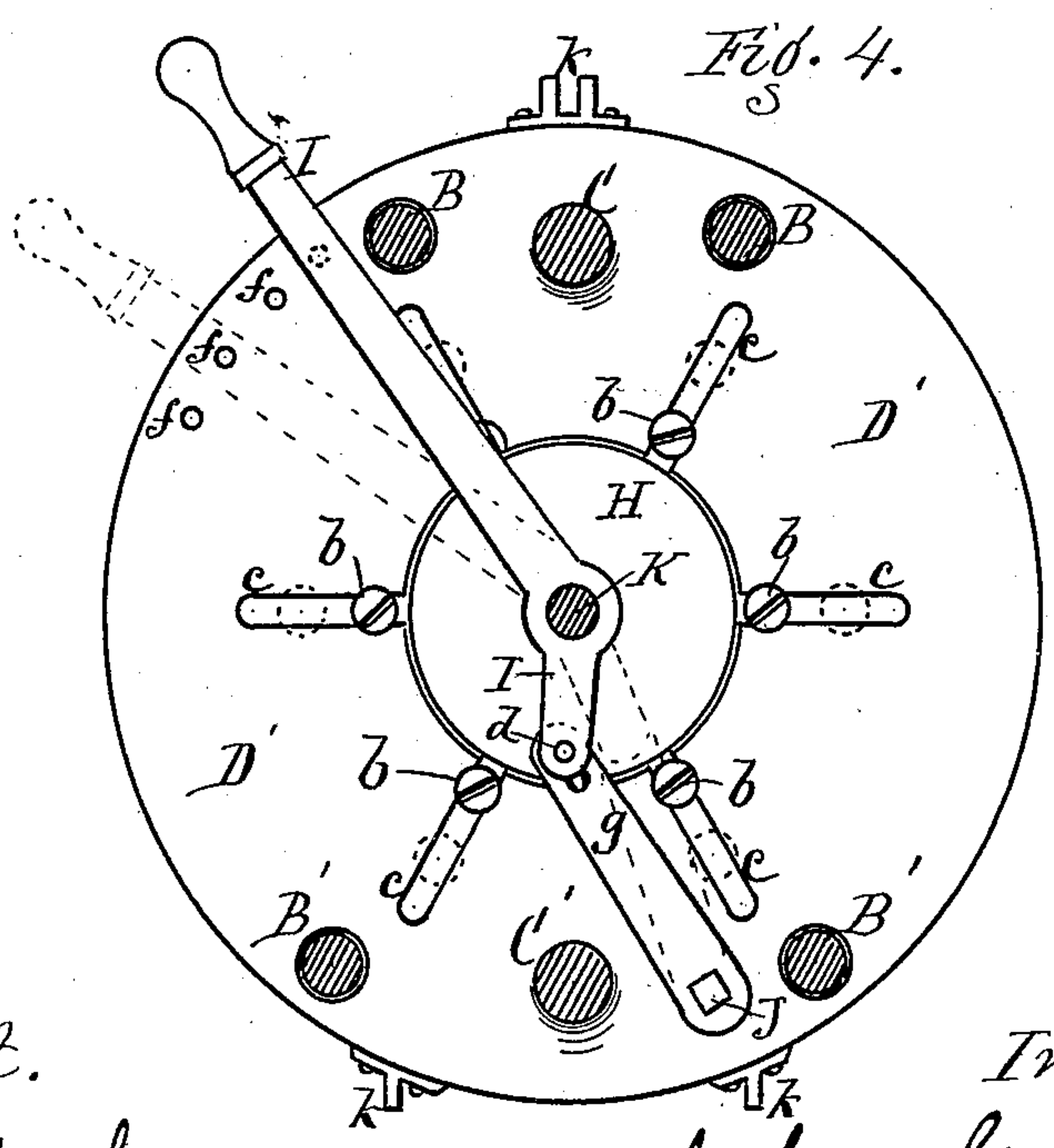


Fig. 4.



Attest.
Jacob Spohn
Geo. H. Elliott

Inventor.
John Greenwood.
per R. F. Osgood.
Atty.

(Model.) 3 Sheets—Sheet 3.

J. GREENWOOD.

BARREL LEVELING AND TRUSSING MACHINE.

No. 246,759. Patented Sept. 6, 1881.

Fig. 5.

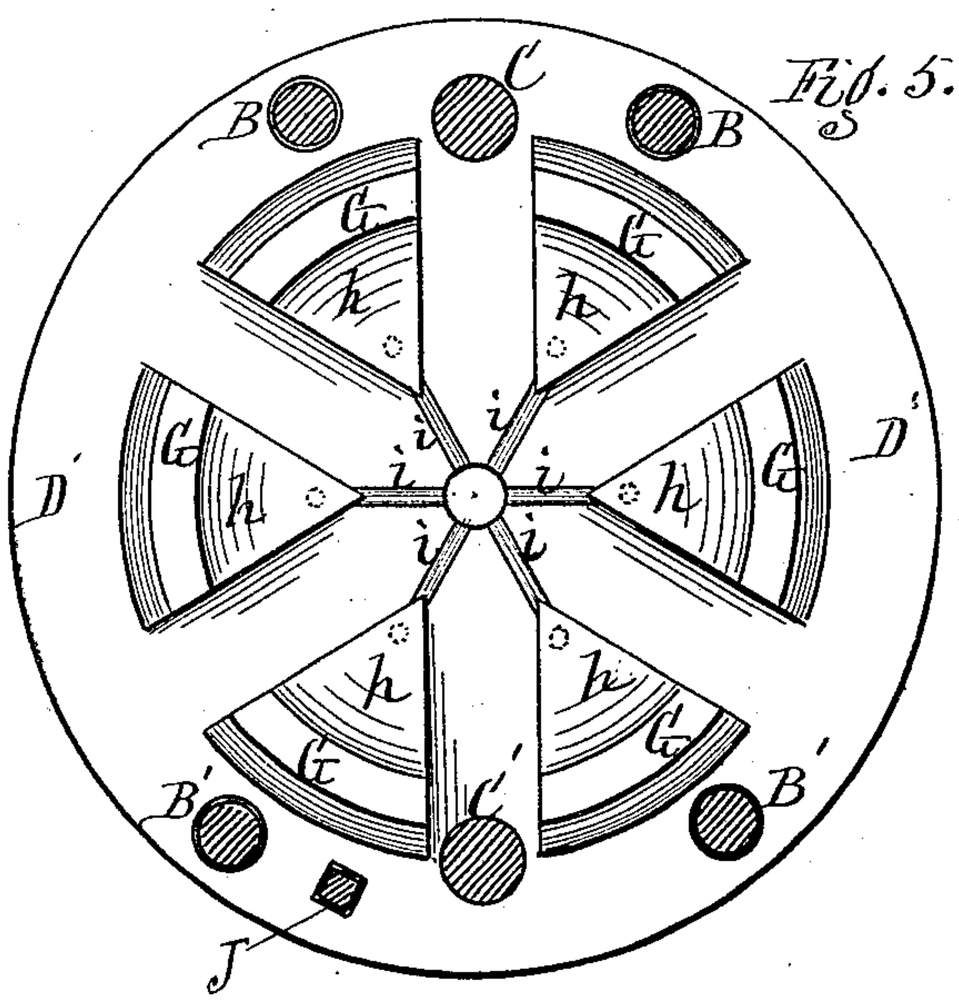


Fig. 6.

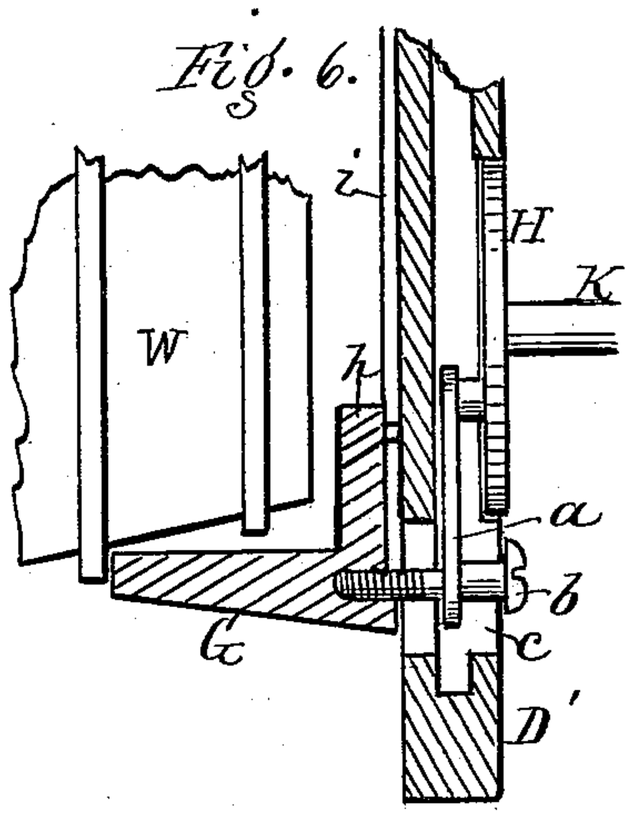


Fig. 7.

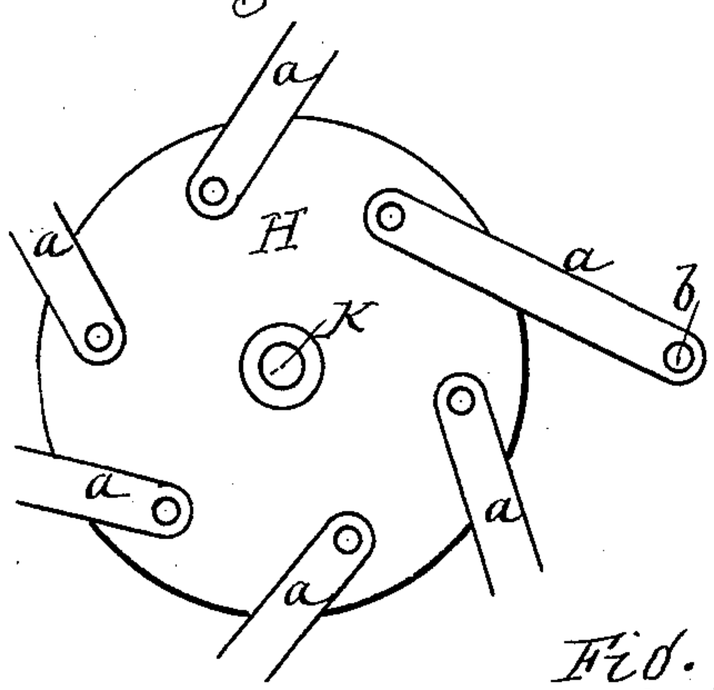


Fig. 8.

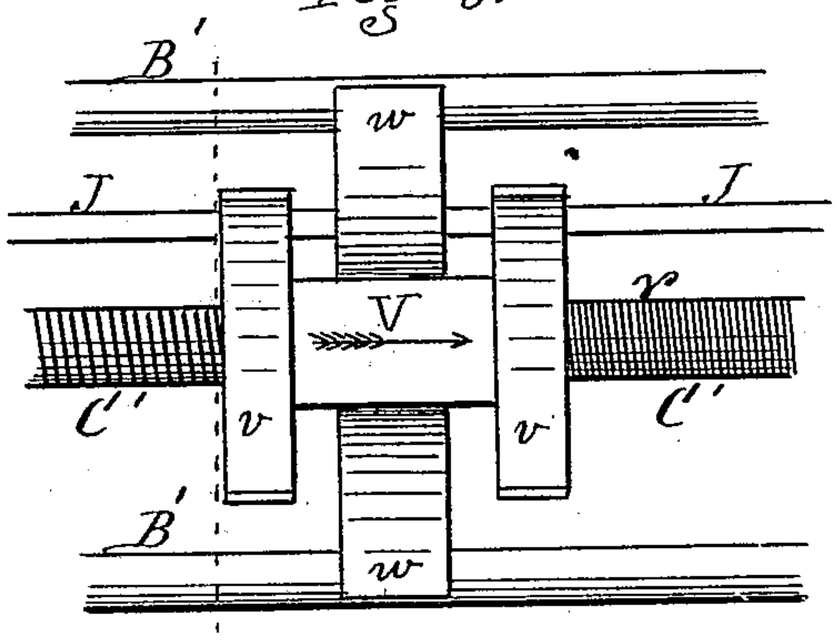
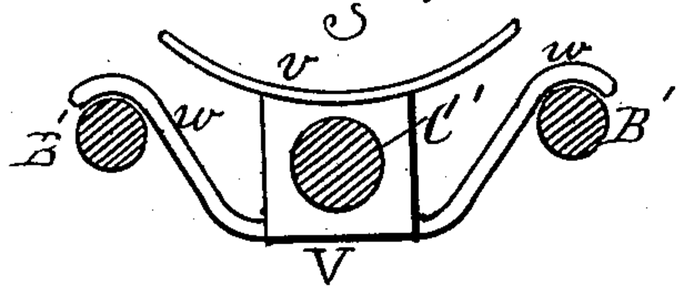


Fig. 9.



Attest.

Jacob Spohn.

Geo. H. Colute.

Inventor.

John Greenwood.

per R. F. Osgood,

atty.

UNITED STATES PATENT OFFICE.

JOHN GREENWOOD, OF ROCHESTER, NEW YORK.

BARREL LEVELING AND TRUSSING MACHINE.

SPECIFICATION forming part of Letters Patent No. 246,759, dated September 6, 1881.

Application filed March 6, 1880. (Model.)

To whom it may concern:

Be it known that I, JOHN GREENWOOD, a citizen of the United States, residing at Rochester, Monroe county, New York, have invented certain new and useful Improvements in Barrel Leveling and Trussing Machines; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 is a plan of the machine. Fig. 2 is a side elevation of the same. Fig. 3 is a cross-section in line *x x* of Fig. 1, looking to the left. Fig. 4 is a cross-section in line *y y*, looking to the left. Fig. 5 is a cross-section in line *z z*, looking to the right. Figs. 6, 7, and 8 are detail views. Fig. 9 is a cross-section in the dotted line of Fig. 8.

My improvement relates to machines for leveling and trussing barrels; and the invention consists in the construction and arrangement of parts hereinafter more fully described and claimed.

A A represent two end pieces, constituting the frame.

B B B′ B′ are four straight rods connecting said end pieces and constituting the ways or guides for the compressing-heads. Two of these rods are at the top and two at the bottom of the machine.

C C′ are two screw-shafts extending from end to end and capable of a revolving motion. One of these is located at the top and the other at the bottom of the machine.

D D′ are two compressing-heads resting on the rods and screws at opposite ends of the machine. The head D at one end moves forward and back on the screws by means of internal threads which engage with the screw-threads. The other head, D′, rests loosely on unthreaded portions of the screw-shafts. The head itself is capable of a limited forward and back motion by means of toggle-arms, as will presently be described.

E E′ are spur-gears upon one end of the screw-shafts, and F is an intermediate pinion, by which means both screw-shafts receive simultaneous and equal motion.

G G G are a series of leveling and truss-driving arms attached to each of the compressing-heads for the purpose of leveling the barrel and driving the truss-hoops. They are of segment form, arranged in a circle, and made movable out and in laterally by the following means:

H, Figs. 4, 6, and 7, is a wheel or disk, which fits in a recess in the back of the head D′, and is capable of a turning motion free of its shaft K and independent of the head.

a a are arms pivoted to the inner face of the disk, and connected at the opposite ends to screws or journals *b b*, which pass through radial slots *c c* of the head, and are movable out and in laterally in said slots. The screws or journals are attached rigidly to the truss-driving arms G G. The connecting-arms *a a* stand tangentially, so that as disk H is turned the truss-driving arms will be moved out or in. The connecting-arms work inside the head D′.

I, Fig. 4, is a hand-lever, having its fulcrum upon the shaft K, and connecting at its bottom with a crank-pin, *d*, attached to the disk H. As the lever is thrown the disk will be turned. The lever has a pin on its back at the top, which engages with any of a series of holes, *f f f*, in the frame, by which the lever is held at any adjustment.

g is a forked crank-arm connecting at top with the pin *d* and at the bottom with a shaft, J, which extends the length of the machine, and has at the opposite end an arm similar to arm *g*, which connects with a crank-pin on a disk similar to disk H, and thereby gives motion to the truss-driving arms at that end of the machine. To enable the disk attached to head D to travel with the head as the latter is operated by the screws, the crank-arm at that end slides free on shaft J, and the latter is made square in cross-section to give proper turning motion to the crank-arm.

By the means above described simultaneous and equal motion is given to both sets of truss-driving arms in opening and closing. The truss-driving arms have radial extensions *h h*, Figs. 5 and 6, projecting inward, and these extensions have, on their back side, pins or feathers, which rest and slide in radial grooves *i i* of the compressing-heads, by which means the truss-driving arms are kept in proper position as they are moved in and out.

k k k are toggle-levers connecting the head D′ with the frame A. Two of these toggles are used at the bottom and one at the top.

l l are rods connecting the upper toggle with the lower ones.

M is a horizontal cross-shaft at the bottom of the machine, to which the arms on one side of the lower toggle-levers are rigidly attached.

N is a rock-lever on the outer end of the shaft. By throwing this shaft up or down it will be seen that the head D′ will be correspondingly thrown forward or back a short distance.

O is a gage-block beneath the lever N, said gage-block being provided with a screw, *m*, which can be set higher or lower to gage the fall of the lever.

P is a friction-wheel, made fast to shaft K and operated by the pinion F.

R R′ are two friction-pulleys, which engage with the friction-wheel.

S S′ are band-wheels, respectively fast on the shafts of the friction-pulleys, and by which the latter are operated. The shafts of the friction-pulleys and band-wheel rest in a rock-plate, T, Fig. 3, which has its fulcrum at *n*, and are so arranged that when one pulley is engaged with the friction-wheel the other is thrown out of engagement, and vice versa.

U is a hand-lever, pivoted to the top of the rock-plate T and capable of movement endwise, as indicated by the dotted lines, Fig. 3. It is secured at any adjustment by means of a pin on one side, which strikes into a series of holes in the frame. By throwing this lever in one direction or the other the rock-plate will be correspondingly thrown, and the engagement of the pulleys with the friction-wheel will be changed. This shifting friction-gear is for the purpose of running the compressing-heads forward and back. When the machine is run forward and has completed its work the pulley R′ is brought in connection, and as the band-wheel S′ is large the machine is run back more rapidly than would be done by shifting the motion of the other pulley.

V is a carriage resting upon the lower screw-shaft, C′, and having rests *v v*, which support the barrel W, also having guide-arms *w w*, which project out and rest upon the rods B′ B′. The screw-shaft on the side next to the stationary head D′ is cut with a thread, *r*, of one-half the gage of that on the opposite side, upon which the head D moves. By this means the carriage which supports the barrel receives just half the forward movement of the compressing-head D, and the barrel remains stationary upon the carriage while the trussing-hoops are being driven up at both ends. If the carriage or rest upon which the barrel lies were stationary, the barrel would slide.

Instead of resting on the screw-shaft, the carriage may be free of it and have arms sliding on the rods B′ B′, so that the carriage may have a free motion of its own, and a bolt or rod may be attached to the sliding head D and run loosely through the carriage, having a shoulder on its end, so that in the back motion of the head the carriage will be drawn back to place.

The barrel, with the truss-hoops in place, is placed upon the carriage V, and motion is given to the machine. The truss-driving arms being contracted to the smallest diameter, they first strike the ends of the staves, as shown in Figs. 1 and 2, and level the barrel. Then, without stopping the machine, the lever N is lifted, which elevates the toggle-levers *k k k* and draws back the head D′, which relieves the pressure of the truss-driving arms on both sides. The lever I is then thrown, which opens or expands the truss-driving arms, so as to strike the end hoops on the barrel. When this is done the same action expands the arms to strike the quarter-hoops. The whole is accomplished without stopping the machine. When the work is completed the friction-gear is changed, as before described, which runs the machine back, the barrel is rolled off, a new one inserted in its place, and the work is repeated.

Having thus described my invention, I do not claim two compressing-heads provided with truss-driving-arms, as I am aware that the same is not new.

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

1. In a barrel-trussing machine, the combination, with the feeding-screws C C′, threaded at one end and unthreaded at the other, of the compressing-heads D D′, the one resting on the threaded portions and receiving positive motion therefrom, the other resting loosely on the unthreaded portions and being stationary while the trussing operation is going on, but being capable of a retrograde or back movement by means of toggles *k k*, to release the pressure and allow the truss-driving arms to be thrown out while the machine is under motion, as herein shown and described.

2. In a barrel-trussing machine, the combination, with the compressing-heads D D′, one resting on the threads of screw-shafts C C′ and the other on unthreaded portions of the same, of the toggles *k k k*, connected with the head D′, the rods *l l*, connecting the upper and lower toggles together, and the shaft M and lever N, for operating the toggles, the whole so arranged, as described, that the head D′ can be moved back for the purpose of expanding the truss-driving arms while the machine is under motion, as herein shown and described.

3. In a barrel-trussing machine, the combination, with the compressing-heads D D′, of the truss-driving arms G G, extending forward from the heads, the said arms being made of segmental form and provided with extensions *h h*, resting against the heads and capable of lateral expansion for shifting from one truss-hoop to another, as herein shown and described.

4. In a barrel-trussing machine, the combination, with the compressing-head D′ and with the truss-driving arms G G, of the disk H,

resting at the back of the head, the connecting-arms *a a*, pivoted to the disk, and the screws *b b*, connecting the arms *a a* with the truss-driving arms, as shown and described, and for the purpose specified.

5. In a barrel-trussing machine, the combination, with the compressing-heads D D′, resting on the screw-shafts C C′, of the separate shaft K, having on its outer end a pinion, F, which engages with the gears E E, that drive the screws, and having also an intermediate fixed friction-wheel, P, with which engages rocking friction-pulleys R R′, of unequal size, as shown and described, and for the purpose specified.

6. In a barrel-trussing machine, the combination of the heads D D′, one movable and the other stationary, screw-shafts C C′, upon which the heads rest, and a carriage, V, resting between the heads and supporting the barrel, the carriage receiving a forward and back movement corresponding with that of the head D, the movement being imparted by the machinery, whereby slipping of the barrel upon the carriage is obviated, as described.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

JOHN GREENWOOD.

Witnesses:
R. F. OSGOOD,
CHAUNCEY PERRY.