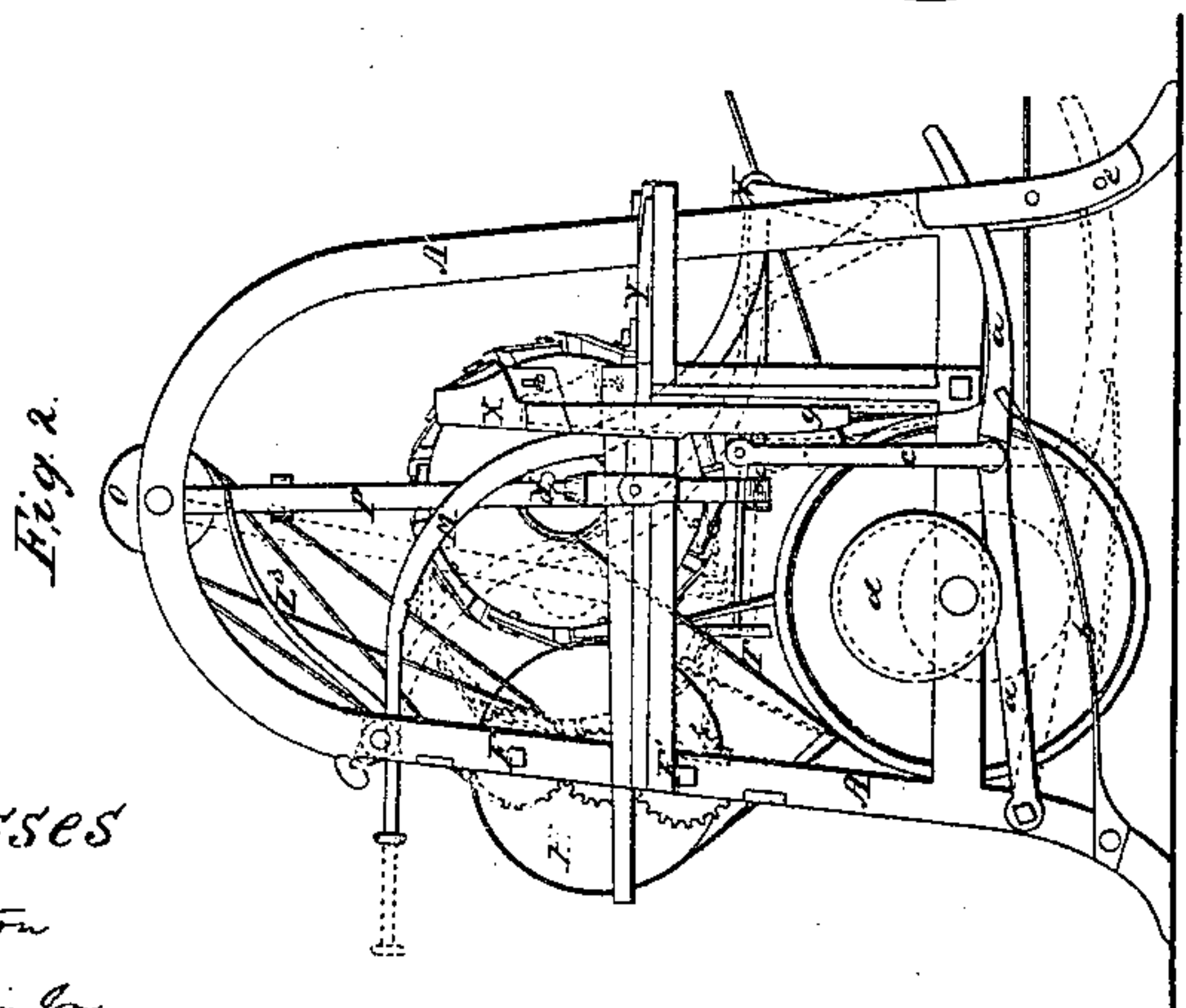
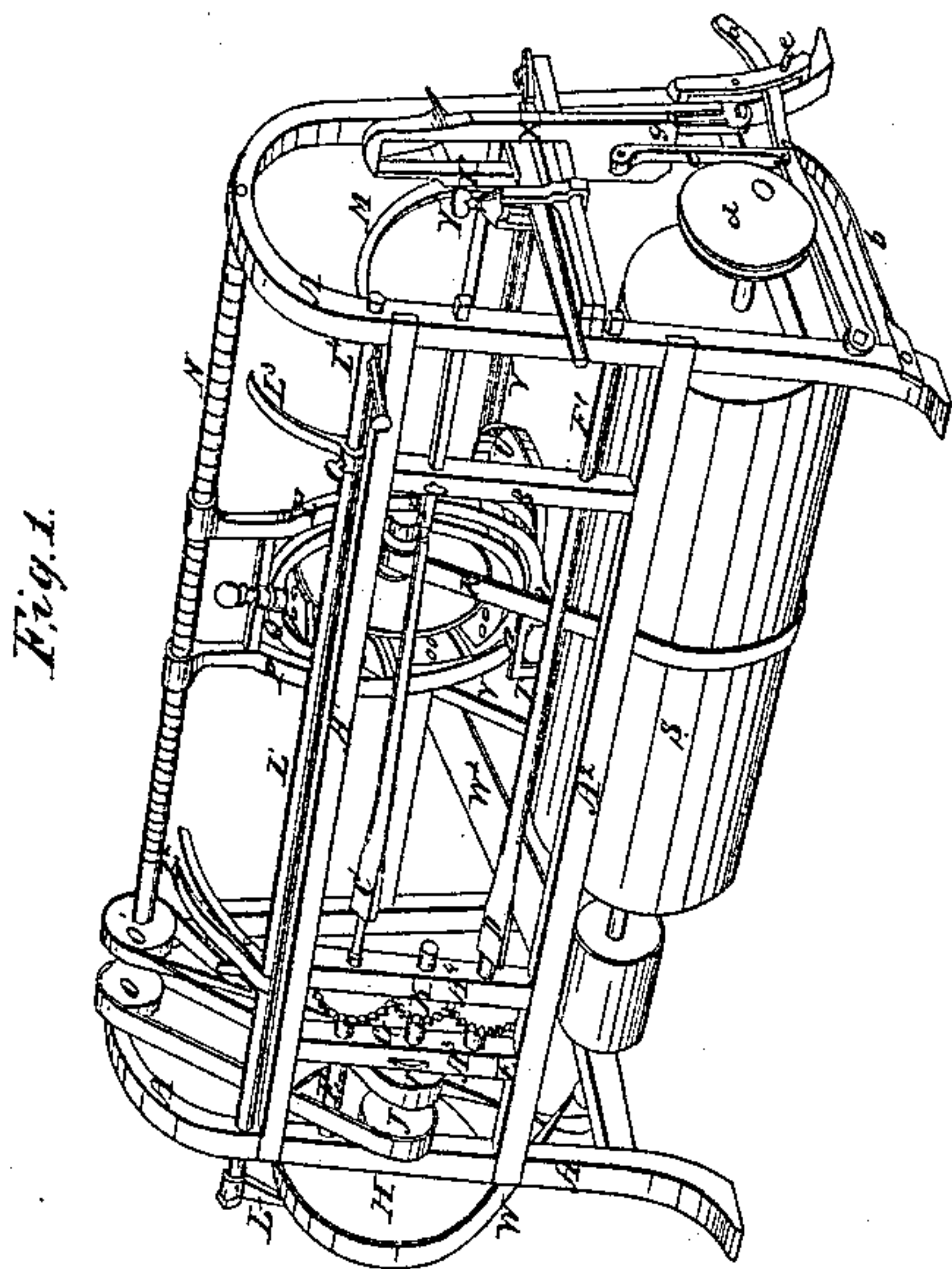
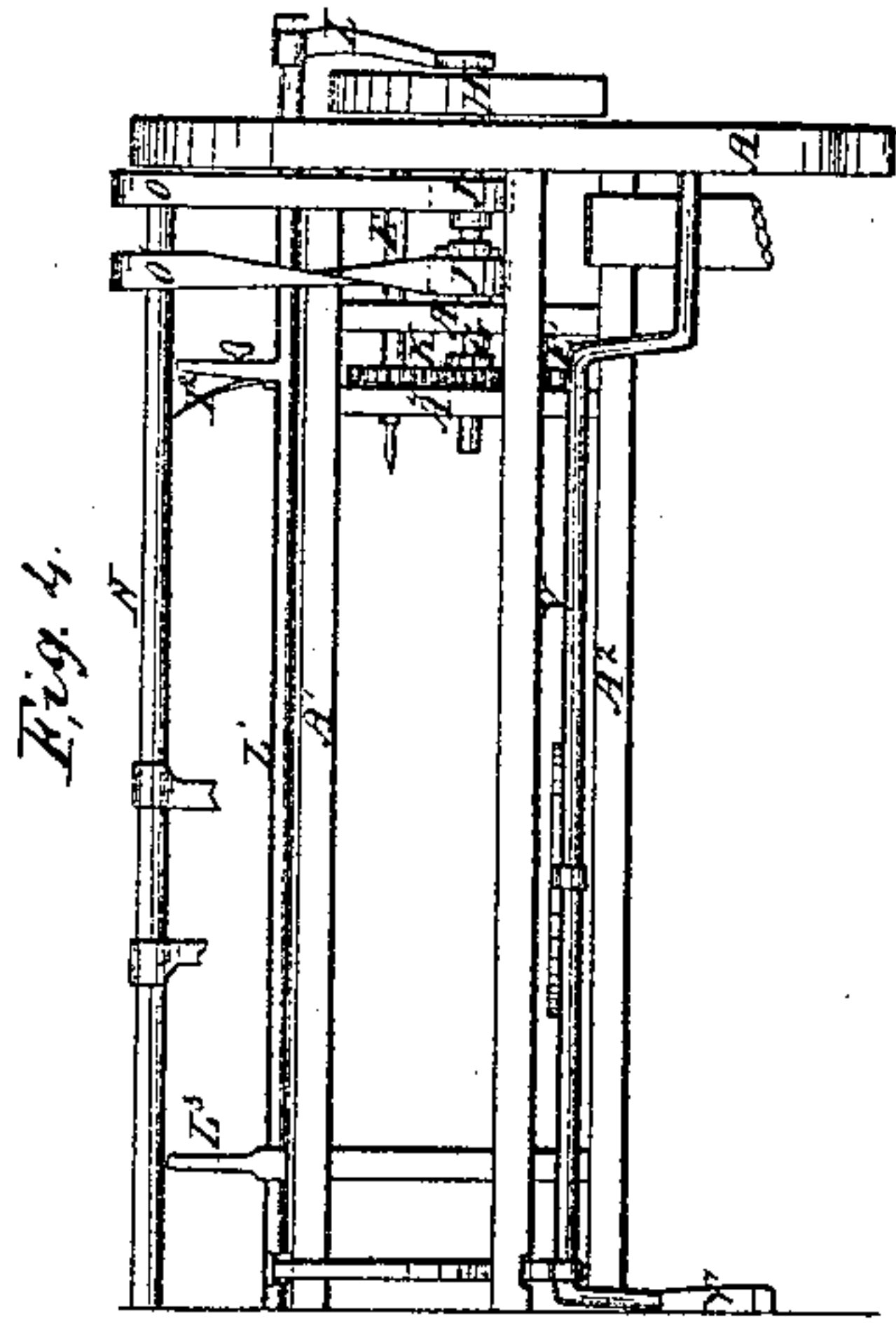


*Stamm & Schubert,
Spoke Lathe.*

N^o 28,787.

Patented June 19, 1860.



Witnesses
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UNITED STATES PATENT OFFICE.

JACOB STAMM AND JOHN SHUBERT, OF SARDINIA, OHIO.

SPOKE-MACHINE.

Specification of Letters Patent No. 28,787, dated June 19, 1860.

To all whom it may concern:

Be it known that we, JACOB STAMM and JOHN SHUBERT, of Sardinia, in the county of Brown and State of Ohio, have invented
5 a new and useful Improvement in a Machine for Turning Spokes, &c.; and we do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and
10 to the letters of reference marked thereon, making part of this specification.

Our invention consists in the employment of a traveling pendulum frame in connection with a swivel frame to carry the cutters,
15 the object of which is to secure to the cutters the proper lateral movement corresponding to the position and shape of the pattern, and at the same time a swiveling movement corresponding to the angular
20 surfaces which may occur upon the pattern.

With reference to the accompanying drawings, Figure 1, is a perspective view of our improved machine. Fig. 2, is an end view. Fig. 3, is a plan of the tenoning device. Fig. 4, is a partial rear view of the
25 machine. Fig. 5, is a representation of one of the cutters and that part of the cutter head to which they are fitted and secured.

A, is the frame, between the two front bars
30 A¹, A², of which is arranged the heads A³, A⁴, and also the head B, which may be made movable to admit long or short work.

C, is the spoke to be turned, and D, is the pattern.

35 E, is an arbor to drive the spoke and is furnished with a center piece to hold one end of the spoke, and the back center F, pivots the other end.

E¹, is the arbor to carry the pattern and
40 F¹, the back center for the same.

G, is a shaft arranged to slide longitudinally and also to revolve in bearings in the frame and heads A³, A⁴. On this shaft G, is arranged the pulley H, for driving it, the
45 pulley I, to give the forward motion of the screw, and pulley J, for the backward motion, and the pinion K, to drive both arbors E E², by meshing into their respective gears one above and the other below it. The pulleys I, J, and pinion K, are prevented from
50 sliding with shaft G, by necks connecting them to the bearings of shaft G, as shown, or any other suitable means, and are each furnished with a hub in which is a groove
55 transversely arranged which with transverse

pins or keys relatively arranged in the shaft G, are made to act as clutches to connect and disconnect them from and with the rotary movement of said shaft. These
60 clutches are operated by means of the longitudinal sliding movement of shaft G, which is effected by the shipping arm L, on the rod L¹. This rod is furnished with the reacting-spring-arm L², and the adjustable arm L³, and a notch or catch at L⁴, for unlocking
65 the rod M. A screw N, is supported in bearings upon the top of the frame and is furnished with the pulleys O, O¹, the first connected to pulley J, by a straight belt and the other to pulley I, by a crossed belt. 70

The pendulum frame P, is suspended on the screw N, and fitted with a nut by means of which it is made to traverse back and forth on the said screw according to the direction of the rotary motion of the screw. 75

Within the pendulum frame is pivoted the swivel-frame Q, so as to swivel or turn upon an axis at right angles with that of the screw or that of the spoke to be turned. In the swivel frame is arranged in suitable
80 bearings the shaft of the cutter head, which is furnished with a suitable pulley and belt R, by means of which the cutter head receives its proper rotary motion from the drum S, arranged below and parallel to the
85 axis of the screw N, the drum being of equal length to the traverse of the pendulum frame to allow the belt R, to traverse a like distance. The swivel frame Q, is furnished with the foot-gage T, which is
90 always pressed into contact with the pattern D, when the cutters are operating upon the spoke C, and not only does this gage secure the proper lateral movement of the cutters corresponding to the position and shape of
95 the pattern, but also produces a swiveling movement corresponding to the angular surfaces which may occur upon the pattern.

The contact of the foot gage T, with the pattern D, is effected by means of the spring
100 U, attached to the pendulum frame P. This spring is connected by a sliding hook to the crank rod V, this rod V, is thrown back into the position seen in Fig. 2, by means of spring V¹, but may be drawn forward to bring the cutters into contact with
105 the work as shown in red in the same figure by means of the rod M, which is furnished with notches to lock upon a pin in the frame whereby the cutters are held in that position 110

until the rod M, is unlocked from the pin when they are thrown back again by the spring V¹. On the shaft of drum S, is a pulley from which a belt W, communicates
5 motion to the pulley H, and its shaft G.

W², is a belt passing around a pulley on the drum shaft and furnishing the moving power for the whole machine from any suitable source. Suitable stops in the pendulum
10 frame prevent the swivel frame from turning too far. On the end of the drum shaft is fixed an eccentric wheel to give the proper reciprocating movement to the cutter stock of the tenoning device.

X is the cutter-stock fitted to move or reciprocate vertically upon slide bearings, and has an open space to receive the end of the spoke on each side of which are arranged suitable planing cutters and spurs
20 for forming the opposite sides of each tenon. The spoke to be tenoned is placed upon a swinging bed-piece Y, and held by a point against which the part for the tenon is thrust, and a set screw Y¹. The swinging
25 bed-piece is first thrown to one side to form one side of the tenon and then to the opposite to form the other.

The stop Z, serves to gage the thickness of the tenon and is made adjustable length-
30 wise so that by means of its V shape different thicknesses of tenons may be gaged. The lever a, is pivoted to the frame and is held in contact with the eccentric by means of the spring b, and to this lever is
35 connected by means of rod c, the cutter-stock g, w. When the tenoning device is not in use the lever a, is pressed down and held clear from the eccentric d, by means of a pin e.

The peculiarity of the cutters is in their peculiar shape, specially adapted to be used in the swivel frame Q, and by means of which we are enabled to bring the whole series into effective use as smoothers or
45 finishers, the number of finishing cutters thereby being increased and they made to follow each other in their operation with such rapid succession as to make their separate strokes scarcely perceptible upon the
50 finished work. The shape of the cutters is clearly shown in Fig. 5, three views being there given.

f, is a sectional view exhibiting the shape of the surfaces of the cutter-head to which
55 the cutters are all made to conform, the curved side f', being made to move in the advance, and remove the superfluous material, while the part which is but slightly curved and that in an elliptical or partly
60 elliptical form, is made to follow and finish the surface.

The employment of the described cutters is made practicable in this class of machines by means of the swivel frame Q.

65 Having described the construction of our

improvement, the operation is substantially as follows. The spoke C, or wood of which it is to be made, is adjusted in its centers as shown in Fig. 1, and a pattern D, corresponding to the form of the spoke required,
70 also arranged in its centers as shown in the same figure. The machine now being set in motion by means of belt W², the pulley J, is put in connection with the movement of its shaft G, by means of its clutch when the
75 frame P, is driven toward arm L², and, said arm having been properly adjusted upon rod L¹, will when the cutters have arrived opposite the end of the spoke C, be in contact with and move said arm and through it
80 and the shipper L L¹, disconnect pulley J, from the rotary movement of shaft G, so stopping the screw and the frame P, remains at rest. The operator after adjusting the foot gage T, to the proper length, draws the
85 rod M, up and locks it upon the pin before referred to, which operation swings the pendulum frame toward the work until the foot gage T, bears upon the pattern D. By means of the rod L¹ the operator now puts
90 pulley I, and the pinion K, into connection by their clutches with shaft G, as described, when the pattern D, and spoke C, are both made to rotate with equal speed, and the screw N, to rotate and drive the frame P,
95 toward the arm L², the spring U, all the while pressing the frames and cutters toward the work so as to make the foot gage T, follow eccentricities and angles perfectly, which occur on the pattern, thus securing the
100 perfect reproduction of its conformation, relatively in the spoke, the knives operating as previously described to produce a smooth surface. When the cutters have arrived at the end of the spoke, the frame P, comes in
105 contact with the spring upon arm L², and compresses it against said arm and then moves the arm, so through rod L¹, and shipper L, sliding back the shaft G and disconnecting the clutches, and unlocking the rod
110 M, when the cutters and frames are drawn back from the work by spring V¹, and the spoke C, and pattern D, cease to revolve. The spring on L², now reacts and through rod L¹, and the shipper L, slides the shaft G,
115 enough farther to bring the pulley J, into connection with the rotary motion of shaft G, so making the screw N, revolve in the opposite direction till the frame P, running back and coming in contact with arm L², as
120 before thereby disconnects the clutch again and the cutters and frames P, and Q, rest as before at the end of the spoke, which meanwhile the operator may have adjusted when he only has to draw up and lock rod M, and
125 connect the clutches and the work proceeds as before. When the spokes are to be tenoned the pin e, is removed and the operation, which has already been made sufficiently clear in describing the construction,
130

may if desirable be in progress while the turning operation proceeds.

Having described the construction and operation of our improved machine; what we
5 claim as new and desire to secure by Letters Patent is as follows.

The combination with the pendulum frame, P, of the swivel frame Q, in which the shaft of the cutter head is mounted—the whole

being constructed and made to operate substantially as and for the purposes set forth. 10

In testimony of which invention we have hereunto set our hands.

JACOB STAMM.
JOHN SHUBERT.

Witnesses:

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D. H. B. COFFIN, Jr.