

(Model.)

2 Sheets—Sheet 1.

F. A. SAVAGE.
SPOKE FINISHING MACHINE.

No. 250,455.

Patented Dec. 6, 1881.

Fig. 1.

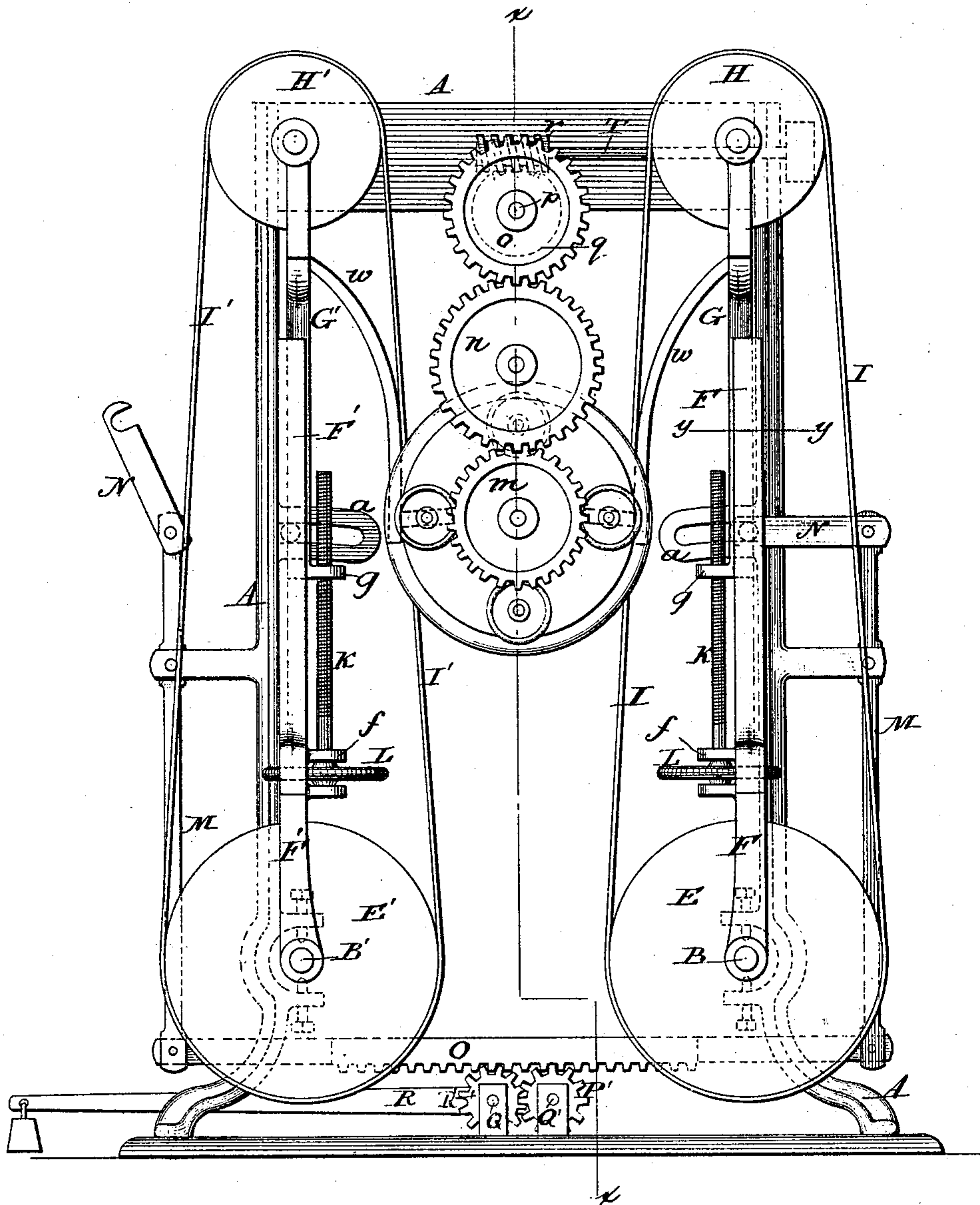
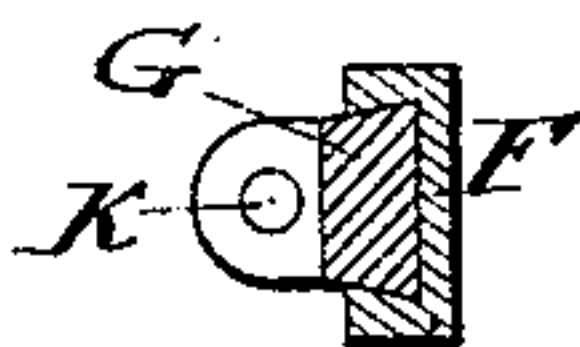


Fig. 3.



Attest.

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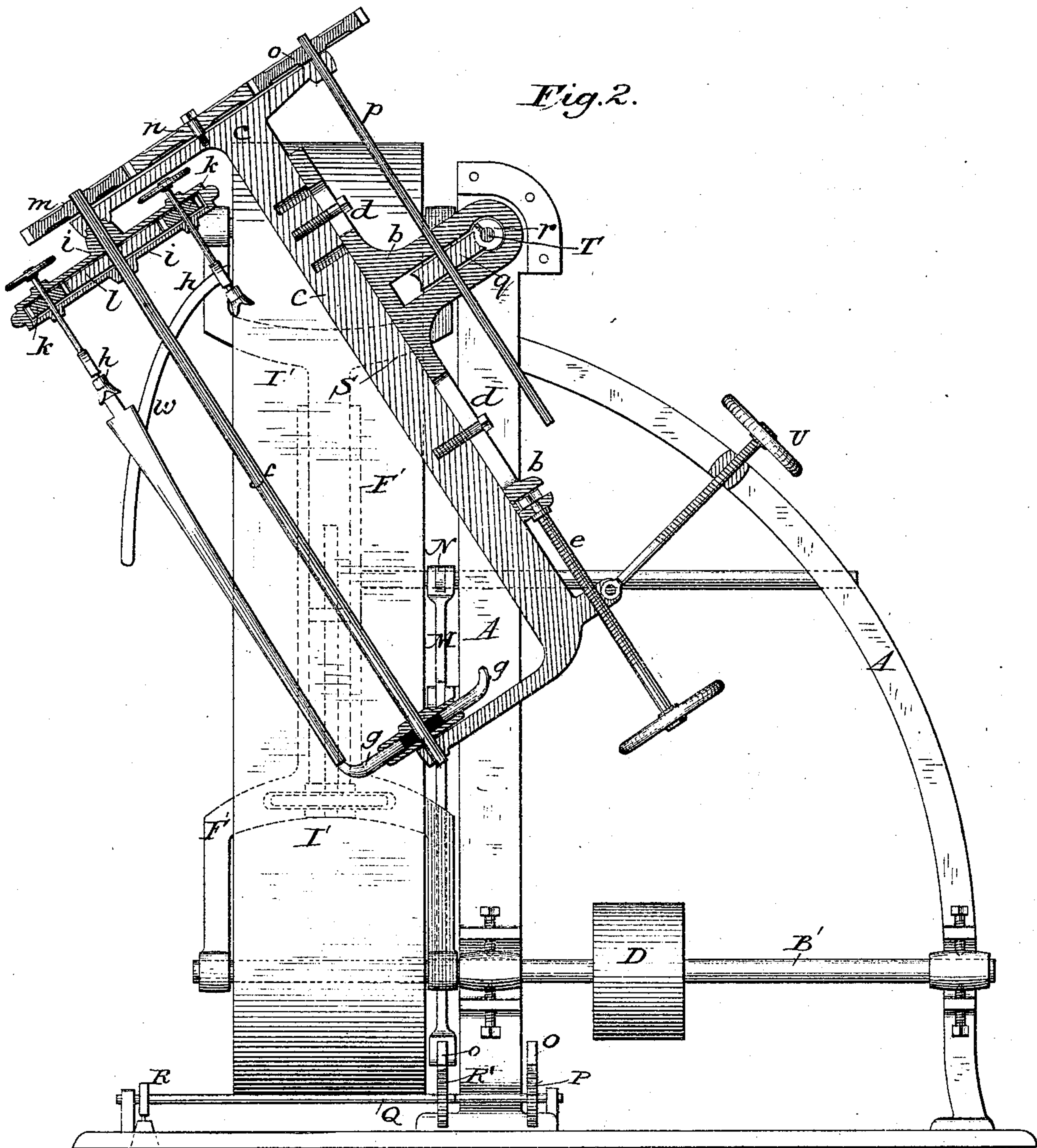


Fig. 2.

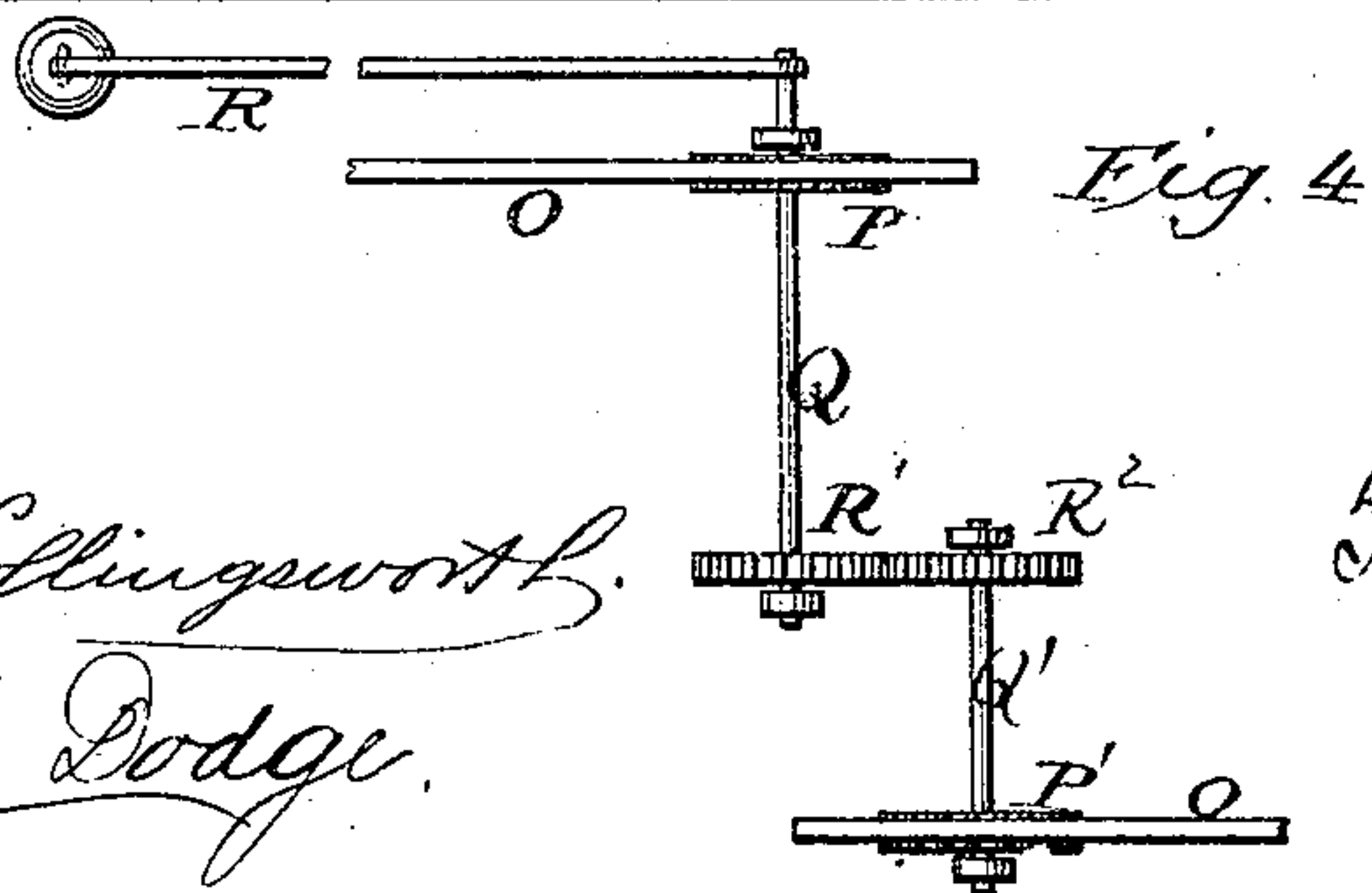


Fig. 4.

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UNITED STATES PATENT OFFICE.

FRANK A. SAVAGE, OF KUTTAWA, KENTUCKY, ASSIGNOR TO BOOTH,
DULANEY & CO., OF SAME PLACE.

SPOKE-FINISHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 250,455, dated December 6, 1881.

Application filed March 8, 1881. (Model.)

To all whom it may concern:

Be it known that I, FRANK A. SAVAGE, of Kuttawa, in the county of Lyon and State of Kentucky, have invented certain Improve-
5 ments in Spoke-Finishing Machines, of which the following is a specification.

This invention relates to that class of spoke-finishing machines in which the spokes are
10 mounted in revolving heads or carriers and presented successively to two finishing-belts, between which the carrying-heads are mounted, and is designed more particularly as an improvement upon the machine for which Letters Patent were granted to me on the 3d day
15 of August, 1880, No. 230,633.

The improvements consist in various details of construction, which will be hereinafter described, consisting, mainly, in the manner of
20 constructing and arranging the frames which carry the belt-supporting pulleys, and in the manner of constructing, supporting, and adjusting the frame in which the revolving spoke-carrier is mounted.

Figure 1 represents a front elevation of my
25 machine; Fig. 2, a vertical section through the same on the line *x x*; Fig. 3, a cross-section on the line *y y*; Fig. 4, a top-plan view, illustrating the manner in which the gears for adjusting the belt-carrying frames are arranged.

30 Referring to the accompanying drawings, A represents a rigid upright frame, provided on opposite sides with bearings, which support two horizontal driving-shafts, B and B', each of which is provided with a pulley, D, to receive a driving-belt, and with pulleys E E', to
35 drive a sanding or finishing belt, the pulleys E E' being located at the front of the machine, on the projecting ends of the shafts. To each of the shafts B and B', I journal loosely the
40 lower forked end of an upright frame, F F', which is free to swing to a limited extent upon the shaft as a center, the motion being limited by slotted arms *a*, formed on the main frame, as clearly represented in Fig. 1. To the up-
45 per end of each frame F F', I secure, in such manner that it may slide thereon, another frame or extension, G G', carrying at the upper end the shaft of a pulley, H H', designed to sustain the upper end of the finishing-belt.

I I' represent the two finishing-belts, one 50
passed around the pulleys E H and the other around the pulleys E' and H'. The frames F and G are connected by means of a screw, K, operated by an end wheel, L, by means of
55 which the arm G may be forced upward to raise the pulley H, and thereby apply the required tension to the belt.

The frames F' and G' are connected in like
manner. On each side of the main frame I mount an upright lever, M, the upper end of 60
which is connected by a detachable link or hook, N, to the adjacent upright swinging frame, for the purpose of throwing the frame inward or outward, in order to move the two belts to or
65 from each other.

The lower ends of the levers N are connected 65
to rack-bars O O', which engage, respectively, with pinions P and P', mounted on shafts Q, the inner ends of which latter are provided with pinions R' and R'', gearing into each other. 70
The outer end of the shaft Q is provided with a weighted lever, R.

Under the above arrangement of parts the weighted lever causes the pinions P and P' to
75 operate the rack-bar O and O', by which the arms F and F' are urged inward toward each other, thereby causing the belts to press with the required degree of force against the spokes being operated upon.

S represents the adjustable frame, by which 80
the rotary spoke-holding devices are sustained. These devices may be of any suitable construction, but are preferably constructed and driven in the manner described in my prior patent before alluded to. 85

The arm S is sustained upon and adapted to swing upon a cross-shaft, T, mounted in bearings in the top of the main frame and rotated by means of a pulley at one end. For the purpose of changing the inclination or position 90
of the frame S, in order to present the spokes at different angles across the belts, I mount in the frame A a large hand-screw, U, the lower end of which is connected to the frame S, as shown in Fig. 2. By turning the screw the 95
frame S may be swung upon the shaft T and fixed in any required position. The frame S consists, as shown, of two main parts, one of

which, *b*, is mounted directly on the shaft *T*, while the other—the larger part, *c*, which carries the spoke-holding devices—is connected to the part *b* by means of slots and bolts *d*, as shown. This construction admits of the part *c* and the devices sustained thereby being moved endwise in relation to the part *b*. The parts *b* *c* are connected, and the latter adjusted by means of a hand-screw, *e*, as clearly represented in Fig. 2.

The devices for supporting the spokes consist, essentially, of a rotary shaft, *f*, mounted lengthwise in the frame *S*, provided at opposite ends with fingers or centers *g*, and with revolving chucks or spindles *h*, so that the spokes may be sustained at one end by the centers and at the opposite end by the spindles or chucks.

The spindles *h* are mounted in a head, *i*, capable of being revolved, and are each provided with a pinion, *k*, which is carried around a gear-wheel, *l*, fixed to the shaft *f*. The head *i* is mounted loosely on the shaft *f*, which is driven by a pinion, *m*, secured upon its upper end.

The pinion *m* receives motion through an idle-pinion, *n*, from a gear-wheel, *o*, which, in turn, receives motion from a shaft, *p*. The shaft *p* passes downward through a worm-wheel, *q*, mounted in frame *S*, and driven by means of a worm, *r*, on the shaft *T*. The rotation of the shaft *T* causes the worm *r* to turn the wheel *q*, and the latter, through the parts *p*, *o*, *m*, and *n*, revolves the shaft *f*.

The rotation of the shaft *f* causes the wheel *l* to transmit motion through the pinions *k* to the spoke-holding spindles *h*, whereby the spokes are revolved upon their own axis. At the same time that this occurs the head *i* may be revolved by hand or otherwise, so as to revolve the spokes around the central shaft, *f*, and present them successively to the belts.

The chucks or spindles *h* have flaring wings or arms, so constructed as to embrace and center work of different forms. Each of the swinging belt-sustaining frames is provided with an inwardly-extending arm, *w*. Each of these arms, being properly shaped or curved, as shown, comes in contact with the chucks or spindles *h*, and the result is, that the spindles, acting upon the arms, move the belt-frames and belts in such manner as the shape of the spokes or other articles under treatment may require.

By constructing the machine with the belts and belt-frames arranged in an upright position, as shown, instead of in a horizontal position, as in my original machine, various advantages are secured, among which are a greater ease in handling and controlling the frames, a reduction of the floor-space occupied by the machine, and the throwing of the dust directly downward or upward, instead of throwing it outward into the room.

Having thus described my invention, what I claim is—

1. In a spoke-finishing machine, the combi-

nation of two upright swinging frames provided with pulleys and polishing-belts, the intermediate rotary spoke-carrier, and automatic means, substantially such as described, for urging the two frames and belts toward each other. 70

2. The combination of the two swinging frames provided with pulleys and polishing-belts, the intermediate spoke-carrier, and arms attached to the swinging frames in position to be acted on by the spindles of the spoke-carrier, as described. 75

3. The swinging belt-polishing frames, links *N*, levers *M*, rack-bars, and pinions, substantially as shown, connected with the weighted lever, for the purpose of urging the frames toward each other. 80

4. In combination with the swinging belt-supporting frames, a weight and devices, substantially such as shown, connecting the same with the frames, said devices containing a detachable member, substantially as shown, whereby either frame may be relieved from the action of the weight at will. 85

5. In combination with the main frame and the upright swinging belt-sustaining frame, means, substantially such as described, for forcing the frame inward to the stops *a*, applied substantially as shown, to limit the inward motion of the frame. 90

6. In a spoke-finishing machine, the combination of an upright finishing-belt and a rotating spoke-carrier sustained in a frame mounted upon and arranged to swing around a shaft, and driving-gear mounted upon said shaft, and intermediate devices, substantially such as shown, connecting said gear with the rotary carrier. 95

7. The combination of the upright finishing-belt, the rotary carrier mounted in a frame, *S*, sustained by shaft *T*, and a screw, *U*, having a bearing in the stationary part of the frame for changing the position of the frame *S*. 105

8. In a spoke-finishing machine, the combination of the finishing-belt, a rotary spoke-carrier, and a frame to sustain said carrier, the latter adjustable longitudinally upon a second frame arranged to swing upon a shaft or pivotal support. 110

9. In combination with an upright finishing-belt, a horizontal shaft, *T*, and frame *S*, mounted thereon, a rotary carrier mounted in the frame, and intermediate gearing, substantially such as described, connecting the carrier with the horizontal shaft. 115

10. The combination, of a rotary spoke-carrier having rotary spoke-holding chucks, a swinging belt-supporting frame, and an arm upon said frame arranged to encounter the chucks, substantially as described and shown, for the purpose of regulating the position and pressure of the belt with reference to the spokes. 120

FRANK A. SAVAGE.

Witnesses:

W. H. WILLIAMS,
T. F. SPUNK.