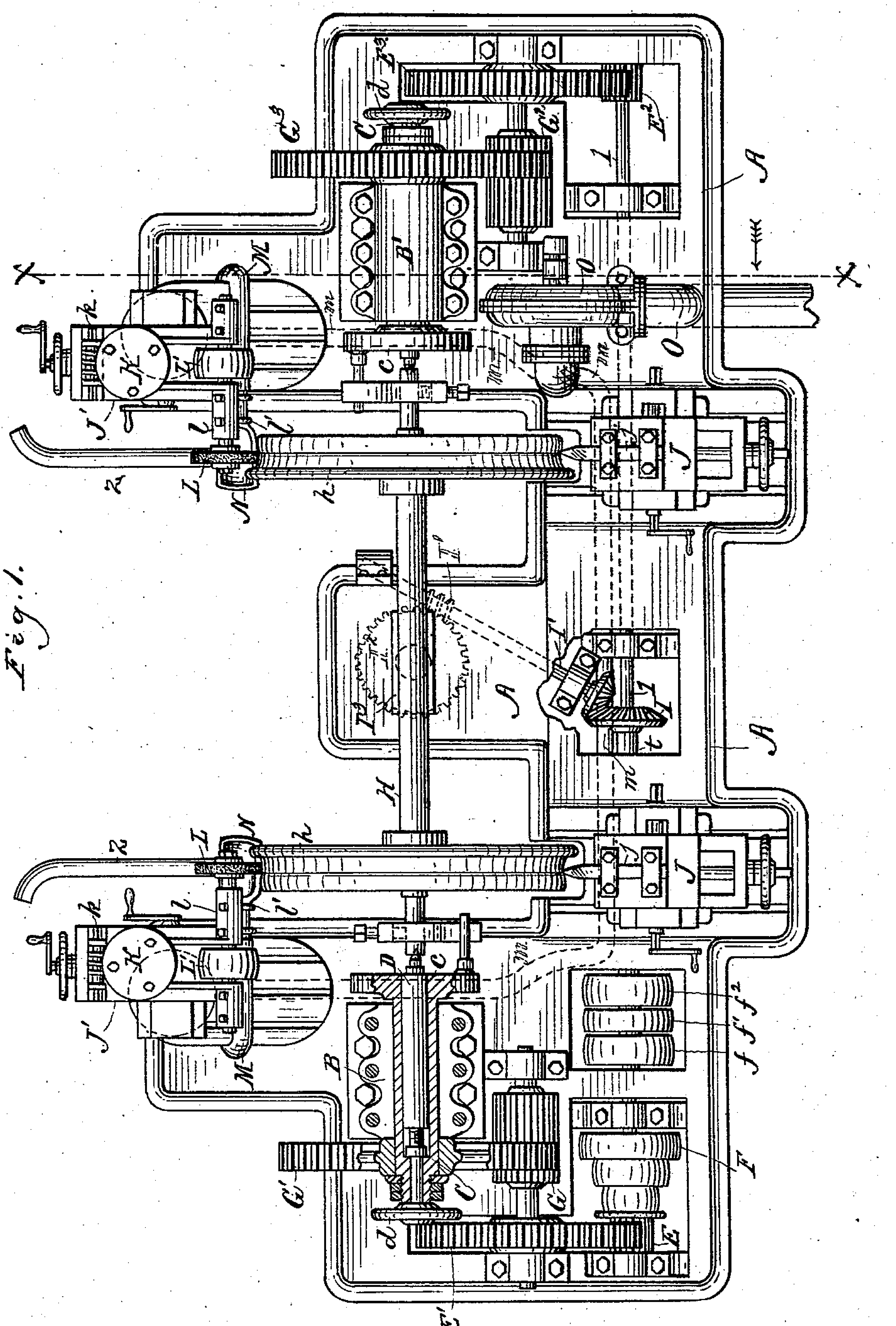
(No Model.) 3 Sheets—Sheet 1.

J. H. GOWAN.

CAR WHEEL TRUING MACHINE.

No. 287,762. Patented Oct. 30, 1883.

Fig. 1.



Witnesses,
Henry Frankfurter,
C. J. Krumbein

Inventor,
James Henry Gowan.
per. George W. Le Vin.
his Attorney.

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 3 Sheets—Sheet 2.

J. H. GOWAN.

CAR WHEEL TRUING MACHINE.

No. 287,762. Patented Oct. 30, 1883.

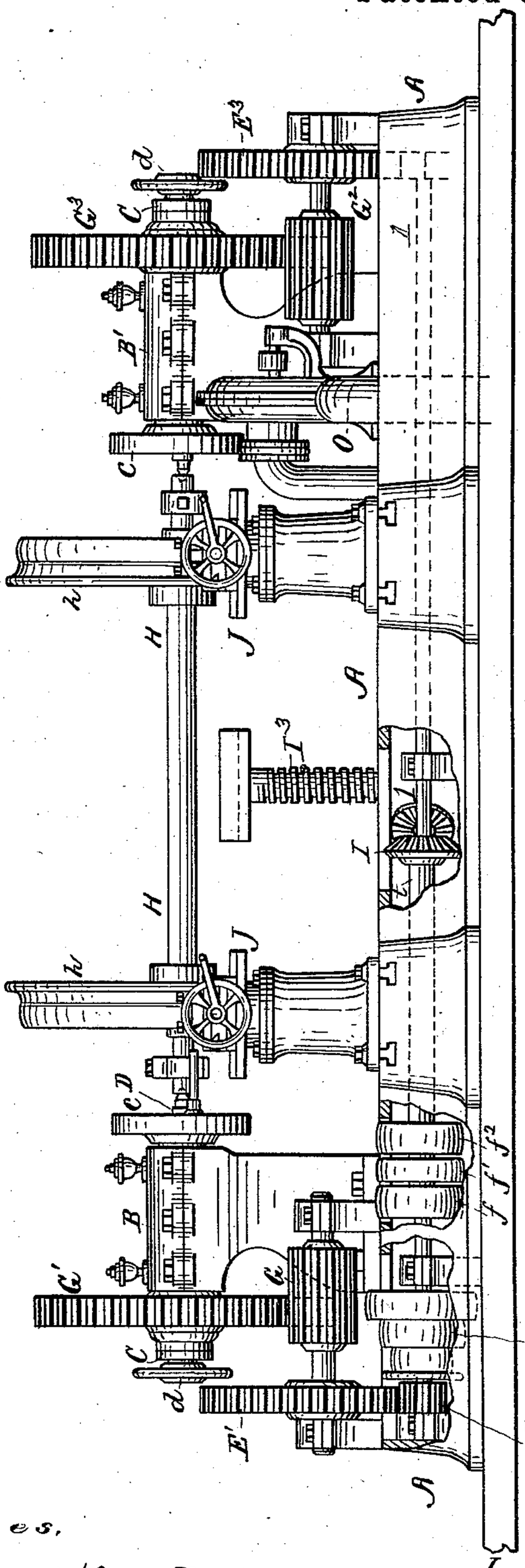


Fig. 2.

Witnesses.
Tony Frankfurter.
C. J. Krumbein

Inventor.
James Henry Gowan
per. George W. LeVin.
his Attorney.

(No Model.) 3 Sheets—Sheet 3.

J. H. GOWAN.

CAR WHEEL TRUING MACHINE.

No. 287,762. Patented Oct. 30, 1883.

Fig. 3.

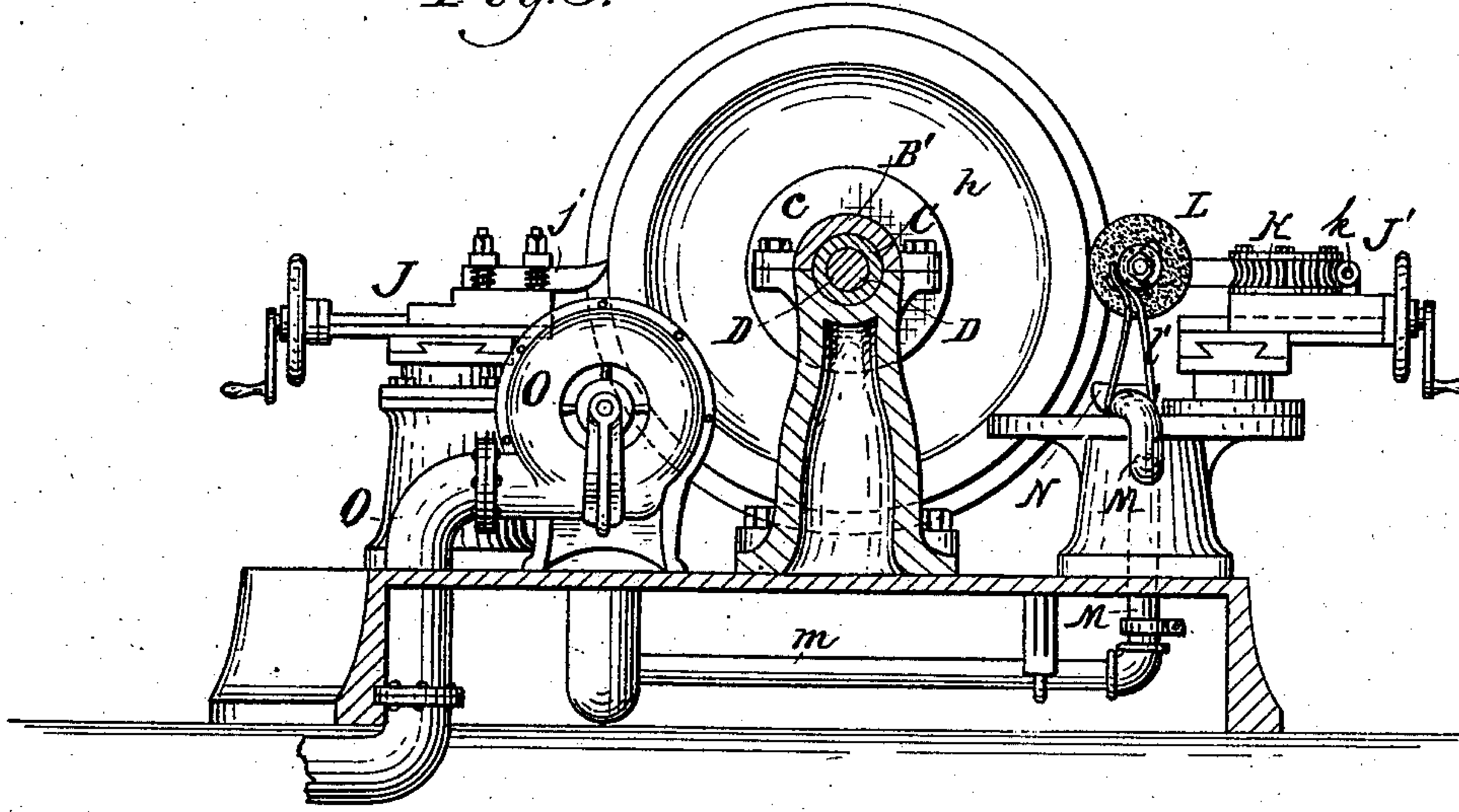
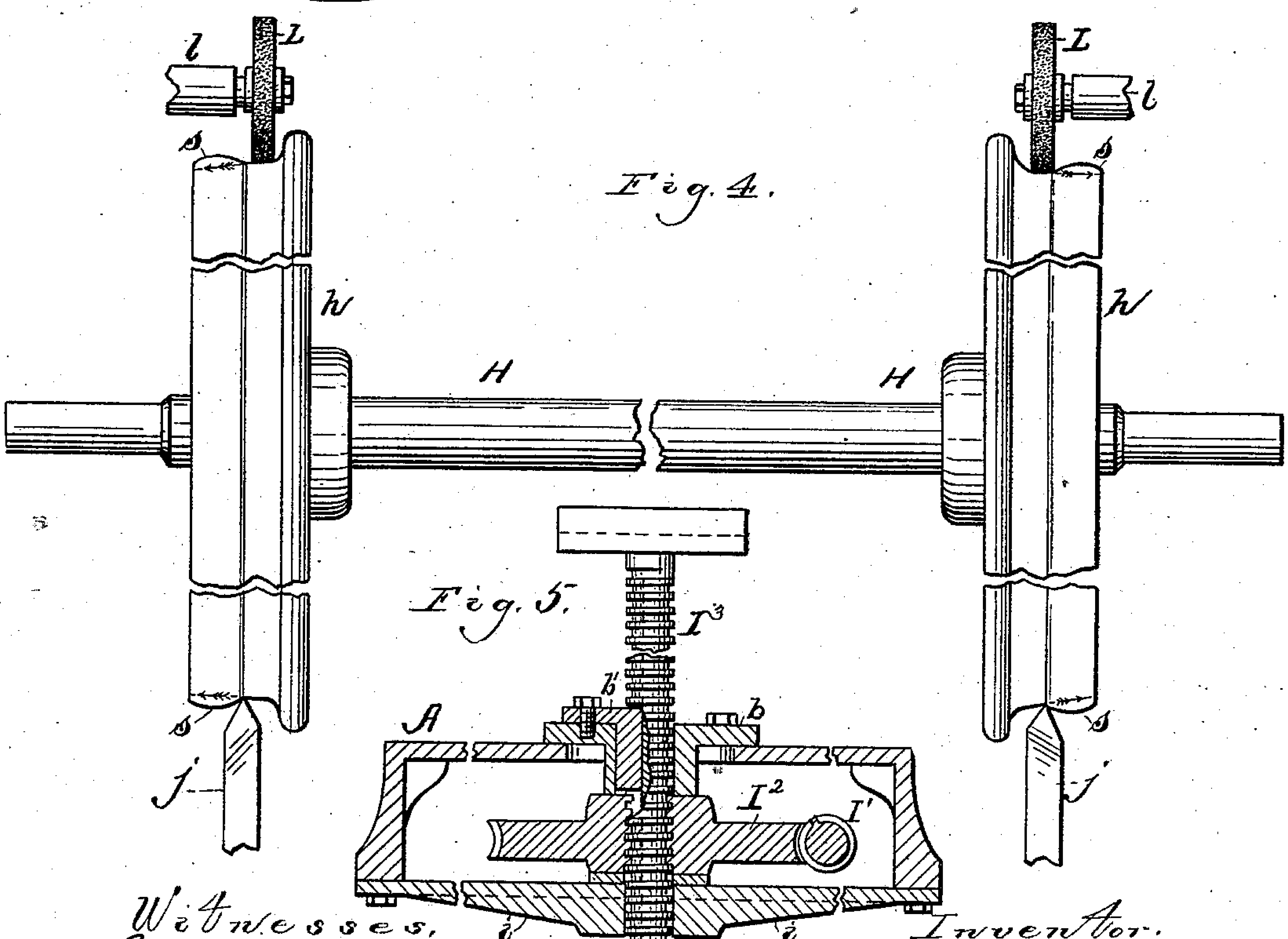


Fig. 4.

Fig. 5.



Witnesses,
Henry Frankfurter,
C. J. Krumheiser

Inventor.
James Henry Gowan.
per. George W. LeVin,
his Attorney.

N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JAMES HENRY GOWAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO WILLIAM P. BLACK, OF SAME PLACE.

CAR-WHEEL-TRUING MACHINE.

SPECIFICATION forming part of Letters Patent No. 287,762, dated October 30, 1883.

Application filed February 8, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES HENRY GOWAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Car-Wheel-Truing Machines, of which the following is a full and exact description.

My invention relates to the work of truing the tread and flange of steel-tired wheels after such parts become impaired by wear; and it consists in the mechanism for supporting and rotating the wheels when fixed to their axle, in combination with truing-tools particularly adapted to such specific work, together with certain other parts, all of which are hereinafter fully set forth.

As a result of long service, a wheel of the class above referred to, while otherwise preserving its original integrity, becomes worn upon a portion of its tread to such an extent that, instead of presenting an even and full bearing-surface to the rail and brake-shoe, it becomes a peripherally-grooved disk, or substantially a wheel having a flange on each side of its tread, with its flange proper badly worn out of shape and proportion, the wheel having a dangerous tendency to jump the track when passing between frogs, in making curves, or in running over switch-rails and rail-joints out of line. It being necessary to the safety and service of a wheel in such condition that it should be reduced to a shape conforming as near as possible to its original contour, it is customary to take the same from under its car, and without removing it from its axle to true it up in an ordinary tire-lathe, a turning-tool being used for doing such truing. The grooved portion of the tread being case-hardened from friction with the rail, it is with great difficulty that the turning-tool, however hard, can be made to penetrate or cut evenly through such scale, it being necessary in order to do such work expeditiously, if at all, that the tool should commence work in the soft portion of the tread, cutting below the line of the under surface of such scale at the lowest point of the groove, and then work across the entire width of the tread. It being safely estimated that one-tenth of an inch of steel tire has a mileage valuation of from twelve thousand to eighteen thousand miles, and it only being necessary to reduce the tread to a proper shape, regardless of such scale, it will be seen that in truing up a wheel by the ordinary method, a vital portion of the tread is removed, which can be avoided by the employment of my machine.

In the accompanying drawings, Figure 1 is a plan of the machine partly in section; Fig. 2, a side elevation; Fig. 3, a section taken on the line *x x* of Fig. 1; Fig. 4 a detail, showing the truing-tools at work; and Fig. 5, a detail of the car-wheel elevating and lowering mechanism.

To the bed-plate A are fastened the shifting-heads B B′, provided with hollow spindles C C, carrying face-plates *c c*, and spur-gear G′ G³, respectively.

Through the spindles C C work centering screw-spindles D D, which are operated by hand-wheels *d d*. Meshing with the spur-gear G′ G³ are pinions G G², the shafts of which carry gear-wheels E′ E³, which are driven by pinions E E², keyed to shaft 1, which carries the belt-pulley F.

Over the shaft 1 works a sleeve, *t*, to one end of which is keyed the belt-pulley *f′*, and to the other end the bevel-gear I, which engages with a similar gear keyed to the end of a shaft which carries the worm I′, which in turn engages with the gear-wheel I².

Through the screw-threaded hub of gear-wheel I², gland *b*, and yoke *i*, Fig. 5, works the screw-threaded post I³, which is provided with a feather-way, in which works the spline *b′*, which fits in a suitable groove provided therefor in gland *b*, to which it is also bolted.

To the right and left of the belt-pulley *f′*, which is keyed to the end of sleeve *t*, are loose pulleys *f f²*, carrying, respectively, straight and crossed belts (not shown) which operate the lifting mechanism last above described.

The slide-rests J J on one side of the machine carry turning-tools *j j*, while the slide-rests J′ J′ on the other side carry abrading-wheels L L, which are rotated by the belt-pulleys L′ L′, the spindles of which work in bearings *l l*, projecting from movable heads K K, which are pivoted to said slide-rests and operated by the worms *k k*, which engage with a segmental gear formed on their perimeters.

Below the abrading-wheels L L, and sup-

ported by brackets *l' l'*, which are fastened to the bearings *l l*, are located hoppers N N, which are connected by flexible piping M M to the rigid piping *m*, which extends below the bed-plate A to the exhaust-fan O, the flexible piping M passing from each hopper into its supporting-column through a suitable opening formed through its outer side, thence downward through the center of such column to connection with the piping *m*. This arrangement of the hoppers and piping gives to the slide-rests J' J' a wide range of lateral action, thereby allowing axles of extraordinary length to pass to position between the heads B B' without obstruction.

The heads B B', being adjustably connected to the bed-plate A by bolts, as shown, may also be shifted longitudinally, as the necessity of the occasion may require, the pinions G G² being of such length that the spur-gear G' G³ may be moved outwardly or inwardly for a considerable distance without being carried beyond engagement.

The operation of my machine is as follows: Car-wheels *h h*, fastened to their axle H, are carried over the track Z Z to the center of the machine. The straight belt working over pulley *f* being put in motion and shifted over to pulley *f'*, motion is communicated through the sleeve *t* and bevel-gear I to the worm I' and gear-wheel I², the screw I³ being thereby moved upwardly, elevating the axle H to the proper height. The straight belt being then shifted back to its pulley *f*, and the spindles D D being carried forward by their hand-wheels *d d* until their centers catch the axle, the cross-belt is shifted from its pulley *f*² to pulley *f'*, the screw being thereby retracted, leaving the axle and wheels suspended between centers. The cross-belt being then shifted back to its pulley, the belt-pulley F is put in motion, imparting motion through shaft 1 and pinions E E² to the gear-wheels E' E³, and through the pinions G G² to the spindles C C, through the spur-gear G' G³, the car-wheels being slowly rotated by means of a dog fastened to each end of the axle H, which are engaged by the face-plates *c c*. The abrading-wheels L L are then started at work upon the case-hardened portion of the treads, truing up the same to a line drawn from the outer surface of such scale at the lowest portion of the groove, while the tools *j j* simultaneously cut away the lumps *s s* upon the same line and in the direction indicated by the arrows, Fig. 4, the abrading-wheels following over such surface as finishing-tools after the rougher and more rapid work of such turning-tools. The flange is then worked into proper shape by the turning-tools or abrading-wheels, or both, as may be necessary or most expedient. The exhaust-fan O having been put in revolution, all dust arising from disintegration of the abrading-wheels or from the car-wheels is drawn into the hoppers N N and through the piping M M and *m* to the exhaust-fan O, by which it is driven away.

It is obvious that while the tools *j j* cannot work advantageously upon the case-hardened portion of the tread, a great length of valuable time would be unnecessarily consumed if the abrading-wheels were required to reduce the lumps *s s;* hence the combined employment of abrading-wheels and turning-tools, each for its specific portion of the work, and contributing materially to the end to be attained.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a car-wheel-truing machine, the abrading-wheel and turning-tool jointly, arranged as described, to simultaneously grind the worn or hardened surface of the tread and turn off the portion of the tread that is least hard, substantially as and for the purpose described.

2. In a car-wheel-truing machine, the combination, with the abrading-wheel L, exhaust-fan O, and fixed piping *m*, of the hopper N, attached to the slide-rest, with which it is intended to operate, and provided with flexible piping M, substantially as and for the purpose described.

JAMES HENRY GOWAN.

Witnesses:
K. COWEN,
W. S. HARBERT.