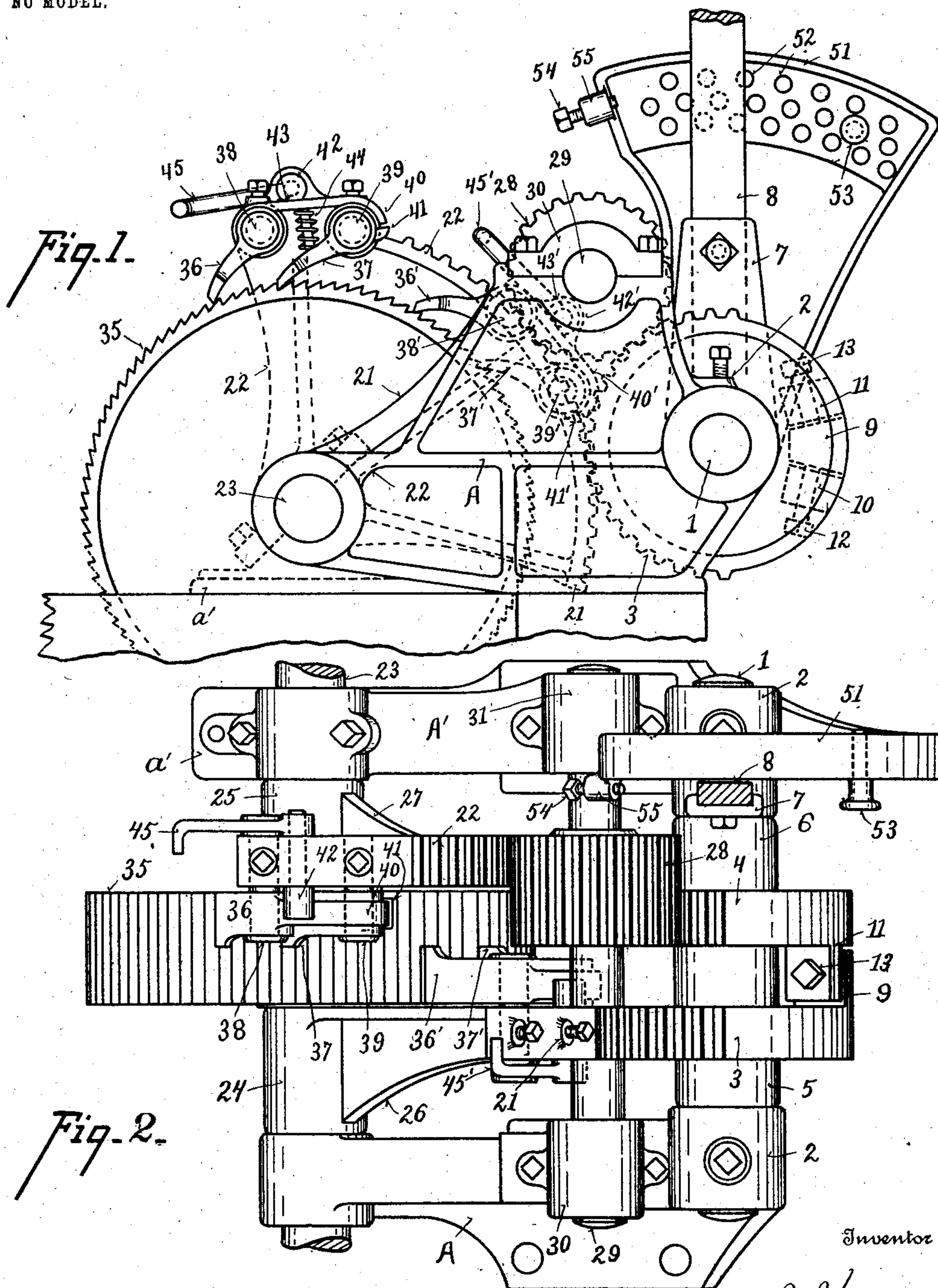


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L. J. HANHART.
SAWMILL SET WORKS.
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NO MODEL.



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UNITED STATES PATENT OFFICE.

LOUIS J. HANHART, OF CINCINNATI, OHIO.

SAWMILL SET-WORKS.

SPECIFICATION forming part of Letters Patent No. 721,182, dated February 24, 1903.

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To all whom it may concern:

Be it known that I, LOUIS J. HANHART, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Sawmill Set-Works, of which the following is a specification.

It is the object of my invention to provide a set-works that shall be accurate when moving the setting-lever in either direction and in which the forward-and-backward movement of the lever moves the knees exactly the same distance, so that the set-works may perform a complete setting of the log by the operation of the lever in one direction, and that shall perform the setting operation by moving the lever in a direction at right angles to the travel of the carriage, thereby affording simplicity in construction, accuracy in movement, and convenience in manipulation.

In practice the "setter" on a sawmill has a number of levers to operate, which in practice are usually operated in a direction at right angles to the travel of the carriage; and it is one of the objects of my invention to provide a set-works which, with the other advantages hereinafter more fully set forth, also provides a lever operating at right angles to the travel of the carriage in order, first, that the various levers on the sawmill-carriage operated by the setter may be operated in the same direction, and, secondly, that the setter may maintain a position in which he has the "sawyer" (whose position is beyond the side of the carriage opposite the setter) in convenient view, so that he may readily receive instruction from the sawyer as to the amount of set to give the set-works during the operation of the machine, the operations being so rapid that it is necessary to convey the information from the sawyer to the setter on the instant and for the setter to immediately act on the information imparted.

In my improved construction of set-works all the parts are conveniently associated, so that the manipulations may be instantly and accurately performed.

My invention consists, therefore, first in providing a set-works in which motion is transmitted from a rock-gearing to a set-shaft and simultaneously transferred to continu-

ous motion in the set-shaft by means of gearing conveying and transferring the reciprocating motion from the rock-gearing to continuous motion in the set-shaft, the axes of the rock-gearing, transmitting-gearing, and the set-shaft being parallel with each other; further, in providing such mechanism with a lever moving in a path toward and from the log or in a direction at right angles to the shaft, and, further, in the parts and in the construction, arrangement, and combinations of parts hereinafter more fully described and claimed.

In the drawings, Figure 1 is a side elevation of my improved device with the lever broken away, and Fig. 2 is a plan view of the same.

My improved device is adapted to be attached to the ordinary framing of a carriage of a sawmill and has two side frames A A', of which one, A, is shown for attaching to the ordinary side timber of the carriage, and the other, A', has an additional extension a', adapted to be secured to a cross-rail of the carriage. A shaft 1 is supported in bearings 2 in the side frames. Upon the shaft 1 a pair of segment-gears 3 4 are adapted to rock, the gear 3 having an elongated hub 5 and the gear 4 an elongated hub 6, the latter being provided with an extension 7, to which a lever 8 may be secured in suitable manner. If desired, the shaft 1 may rock and the gears be firmly secured thereto. The gear 3 has a lug 9 extending toward the gear 4, which latter has lugs 10 11 extending toward the gear 3. Set-bolts 12 13 take through the lugs 10 11 against the lug 9 for coupling and relatively adjusting the gears 3 4 in order to cause accuracy of movement and provide for the taking up of wear in manner hereinafter and more fully described. A pair of segment-gears 21 22 are hung about a shaft 23, (which I shall term the "set-shaft,") preferably having elongated hubs 24 25 and braced by webs 26 27. The gear 3 meshes with the gear 21, and the gear 4 meshes with a pinion 28, which in turn meshes with the gear 22, the pinion being shown as a wide pinion spanning both gears. The pinion 28 is supported by a shaft 29, journaled in bearings 30 31 in the side frames. A ratchet-wheel 35 is secured to the shaft 23. The gear 22 supports pawls 36 37

on studs 38 39, either of which pawls is adapted to make contact with any of the teeth of the ratchet-wheel, while the other is in a position intermediate between the engaging
5 faces of two adjacent ratchet-teeth in order to permit the ratchet-teeth to be made larger than if only one pawl were employed, thereby increasing the strength of the same. The pawl 36 has a heel 40, adapted when depressed
10 to engage a heel 41 on the pawl 37 for disengaging the pawls from the ratchet-wheel when returning the knees to the rear of the carriage after completion of the sawing of a log.

42 is a cam having a flat face 43 for permitting the pawls to engage the ratchet-wheel, a spring 44 between the pawl 37 and the heel of pawl 36 aiding in pressing the pawls toward the ratchet-wheel. The cam 42 has a lever 45, which when raised throws the cam
15 into engagement with the heel of pawl 36, thereby depressing the heel, which in turn depresses the heel of pawl 37 and raises the engaging faces of both pawls for releasing the ratchet-wheel. The gear 21 is provided with
25 similar engaging mechanism for the ratchet-wheel, (indicated by the same but primed numerals.) The operating-lever 8 is arranged to swing adjacent to an arc 51, provided with apertures 52 for receiving a pin 53 for adjust-
30 ably limiting the throw of the lever, the apertures in practice being spaced for inches and parts of inches and determining the thickness of the board to be cut from the log. A set-bolt 54 is screwed into a lug 55 for forming an adjustable fixed stop for the operating-
35 lever, the adjustment being provided for compensating for different kerfs of saw-blades used in the sawmill.

The adjustment between the gears 3 and 4
40 by means of the set-bolts 12 and 13 is provided for causing accurate relative engagement between the pawls of gears 21 and 22 with the ratchet-wheel and for compensating for lost motion and wear between the gears 3
45 and 4 and the contact-points between the pawls and the ratchet-wheel.

In practice the shaft 23 is given a continual impetus to return the knees to the rear of the carriage in ordinary manner, as by
50 means of a spring coiled about said shaft, (not shown, because well known,) and the motion imparted by the set-works is for moving the log secured to the carriage by the knees toward the saw-blade either predetermined
55 or varying distances at each advance of the log, depending on the quality of wood disclosed by each cut of the sawmill. For instance, the pin 53 may be placed in any of the apertures 52 of the arc, and a thrust of
60 the lever in one direction will move the log accurately and sufficiently for a cut, or, if a cut of double thickness is desired the lever may be moved over and returned to initial position for effecting the movement of the
65 log a double distance. In some constructions heretofore used the motion was imparted from the lever to the pawls through the

medium of links, one connecting with the operating-lever above and the other below its pivotal point, resulting in varying angles be- 70
tween the operating-lever and the links at each different setting of the lever for different thickness of stock and compelling a thrust and return of the lever for each advance movement of the log. In my improved 75
device I provide gears whose axes are parallel with each other, thereby insuring accuracy at all times and permitting a full advance of the log for a cut by one movement of the operating-lever in one direction, a 80
further setting of the log by the return of the lever to initial position, both advances of the log, by reason of my improved construction, being exactly alike, and providing a device 85
in which the movement in either direction is accurate irrespective of different settings for limit of movement of the operating-lever, and also providing a device in which the operating-lever is moved in a direction at right angles to the log, so that the setter may 90
stand conveniently in such position as to have the sawyer and his motions in view when setting without being obliged to change his position on the carriage.

The shafts 1 and 23 extend longitudinally 95
of the sawmill-carriage and its travel and of the log when placed on the carriage.

I claim—

1. A set-works, comprising in combination a set-shaft, a pair of spur-gears and a ratchet- 100
wheel therefor, pawls between the spur-gears and ratchet-wheel, and spur rock-gearing connected with the pair of spur-gears, one through an intermediate spur-pinion.

2. A set-works having a lever movable at 105
right angles to the carriage, in combination with a set-shaft and oppositely-reciprocating spur-gears and a ratchet-wheel whose axes are coincident, with pawls between the spur-gears and ratchet-wheel, and spur rock-gearing con- 110
nected with said oppositely-reciprocating spur-gears, one through an intermediate spur-pinion, moving the knees equally and forming a full set at each throw of the lever.

3. In sawmill set-works, the combination 115
with a lever movable at right angles to the carriage, of a pair of segmental spur-gears reciprocatingly operated thereby, a set-shaft, and a second pair of segmental spur-gears and a ratchet-wheel having an axis coincident with 120
the axis of the set-shaft, pawls connecting the latter spur-gears and the ratchet-wheel, with the first pair of segmental spur-gears operatively connected with the second pair of segmental spur-gears, one of each pair through 125
an intermediate spur-gear and operating the set-shaft in the same direction continuously for equal distances by movement of the lever equal distances in opposite directions.

4. Sawmill set-works comprising in combi- 130
nation rock-gearing and a pair of gears, with one of said gears and said rock-gearing interconnected for rocking in opposite directions and a pinion between the other of said pair

of gears and the rock-gearing for rocking in the same direction, a ratchet-wheel, a set-shaft operatively connected therewith, and pawls between said pair of gears and the ratchet-wheel, with parallel axes for the rock-gearing, set-shaft, pinion and pair of gears.

5 5. The combination in sawmill set-works of a set-shaft, two series of segment-gears, one series of which is connected with the set-shaft, 10 a pinion between one gear of each series, parallel axes for the gears and pinion, with the gears and pinion operatively interconnected, a lever for reciprocating the first series of gears in one direction, and thereby reciprocating the gears of the second series of gears 15 simultaneously in opposite directions, with a pawl for each of the second series of gears, and a ratchet-wheel connected with the set-shaft engaged by the pawls.

20 6. The combination in sawmill set-works of two gears rocking together, means for relatively adjusting the same about their axis, two other gears simultaneously rocking in opposite directions, a pinion operatively connecting one of the first-mentioned and one of 25 the last-mentioned gears, with the other of said first-mentioned and the other of said last-mentioned gears also operatively connected; a pawl for each of the said last-mentioned 30 gears, and a ratchet-wheel engaged by the pawls, with the axes of the gears, pinion, and ratchet-wheel in parallel planes, substantially as described.

7. The combination in sawmill set-works of 35 two segment-gears rocking together, with lugs and set-bolts between the same for adjusting the same about their axis, a set-shaft, two other segment-gears rockable thereabout, with one of the first-mentioned meshing directly with one of the second-mentioned segment-gears, a pinion, and the other of the 40 first-mentioned segment-gears meshing with the pinion, which in turn meshes with the other of the second segment-gears, a ratchet-wheel secured to the set-shaft, and pawls between the second segment-gears and the 45 ratchet-wheel, with the axes of all said segment-gears, pinion and set-shaft parallel with each other, substantially as described.

50 8. In sawmill set-works, the combination of a pair of spur-gears rocking simultaneously in similar directions, a set-shaft, a pair of spur-gears therefor rocking simultaneously in opposite directions, one of each pair of 55 spur-gears intergeared for simultaneously rocking in opposite directions and spur-gear interconnecting the other of each of said pair of spur-gears for simultaneously rocking in the same direction, with the axes of all of said

gears and of said set-shaft parallel with each other. 60

9. In sawmill set-works, the combination with the carriage, of a pair of spur-gears rocking simultaneously in similar directions, an operating-lever therefor, a set-shaft, a pair 65 of spur-gears therefor rocking simultaneously in opposite directions, one of each pair of spur-gears intergeared for simultaneously rocking in opposite directions and spur-gear interconnecting the other of each of said pair of spur-gears for simultaneously rocking in the same 70 direction, with the axes of all of said gears and of said set-shaft parallel with each other, and the lever movable in a path at right angles to said axes. 75

10. In sawmill set-works, the combination with the carriage, of a pair of spur-gears rocking simultaneously in similar directions, means for relatively adjusting said gears about their axis, a set-shaft, a pair of spur-gears therefor rocking simultaneously in opposite directions, one of each pair of spur-gears intergeared for simultaneously rocking in opposite directions and spur-gear interconnecting the other of each of said pair of spur-gears for simultaneously rocking in the same 80 direction, with the axes of all of said gears and of said set-shaft parallel with each other. 85

11. In a sawmill set-works, the combination of a set-shaft, a pair of spur-gears and a ratchet-wheel therefor, pawls between the spur-gears and ratchet-wheel, and a pair of spur rock-gears, having coincident axes, connected with the pair of spur-gears, one through an intermediate pinion, and means 90 for adjusting the relation of the pair of spur rock-gears about their axis. 95

12. In a sawmill set-works, the combination with a pair of spur-gears, means for reciprocatingly operating the same, a set-shaft, a second pair of spur-gears and a ratchet-wheel having an axis coinciding with the axis of the set-shaft, pawls connecting the latter spur-gears and the ratchet-wheel, with the first-named pair of spur-gears operatively connected with the second-named pair of spur-gears, one of each pair through an intermediate spur-gear and operating the set-shaft in the same direction continuously for equal distances by movement of the lever equal distances in opposite directions. 100 110

In testimony whereof I have subscribed my name hereto in the presence of two subscribing witnesses.

LOUIS J. HANHART.

Witnesses:

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JOHN J. MEYERS.