(No Model.) 3 Sheets—Sheet 1.

J. H. VORSTMAN & E. F. NIEDECKEN.

SAW MILL CARRIAGE OFFSET.

No. 462,286. Patented Nov. 3, 1891.

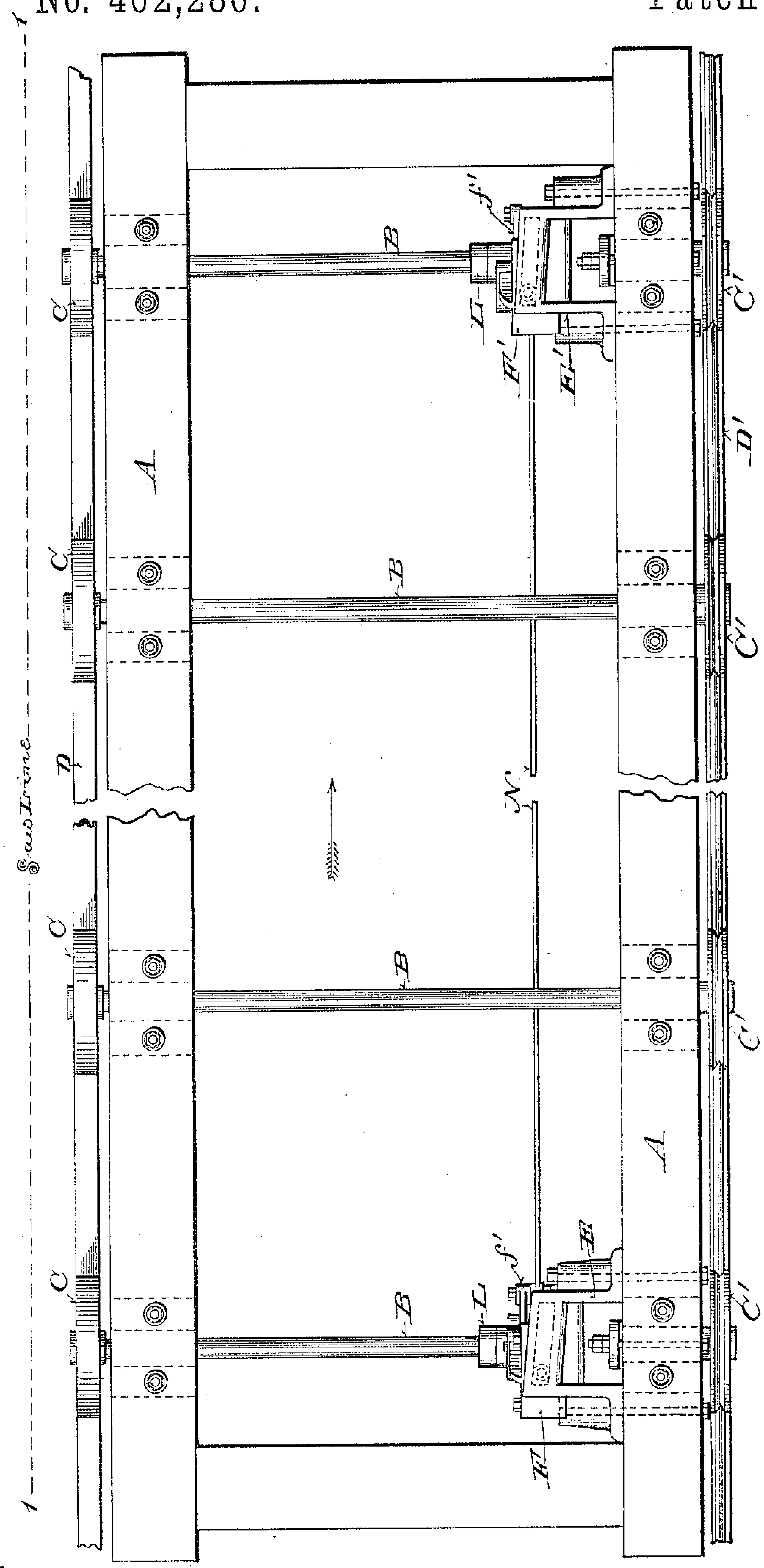


Fig. 1.

Witnesses:
Ebe Asmus
Chas. L. Goss.

Inventors,
John H. Vorstman
Edward F. Niedecken
By Winkler Flanders Smith Bottum & Vilas
Attorneys.

(No Model.) 3 Sheets—Sheet 2.

J. H. VORSTMAN & E. F. NIEDECKEN.

SAW MILL CARRIAGE OFFSET.

No. 462,286. Patented Nov. 3, 1891.

Fig. 2.

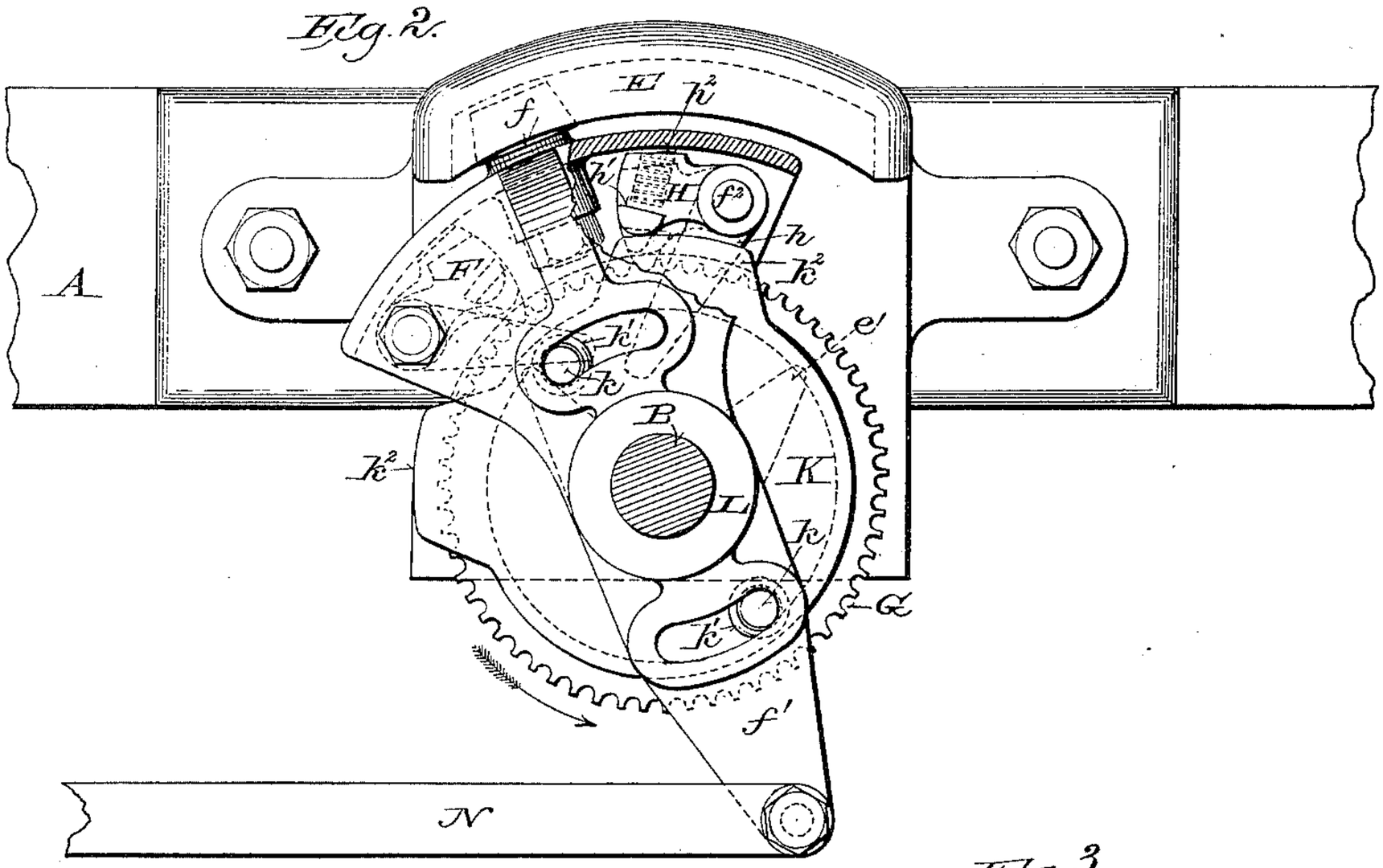
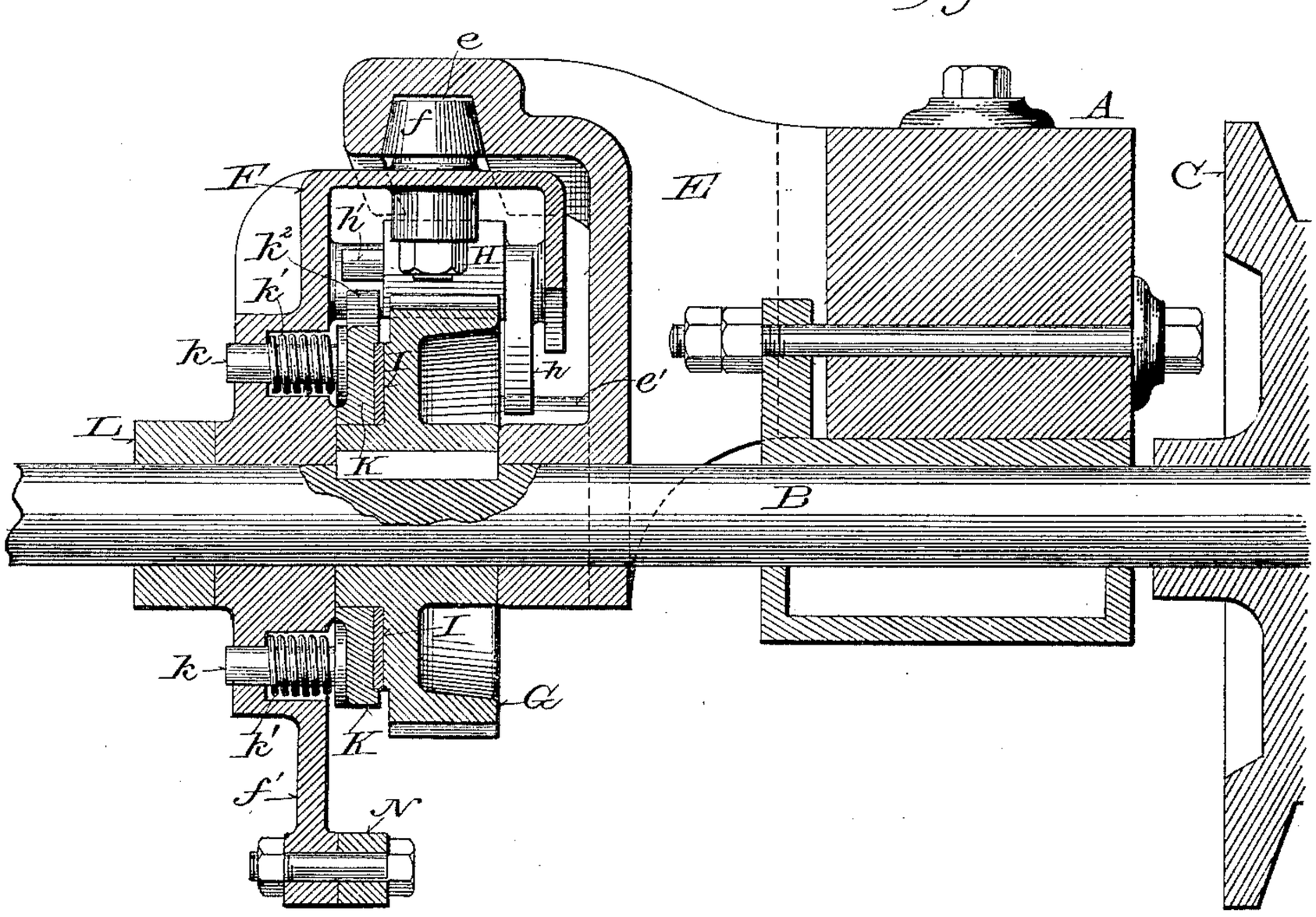


Fig. 3.



Witnesses:
E. C. Tompkins
Chas. L. Goss.

Inventors,
John H. Vorstman
Edward F. Niedecken
By Wickler Flanders Smith Bottum & Vilas
Attorneys.

(No Model.) 3 Sheets—Sheet 3.

J. H. VORSTMAN & E. F. NIEDECKEN.

SAW MILL CARRIAGE OFFSET.

No. 462,286. Patented Nov. 3, 1891.

Fig. 4.

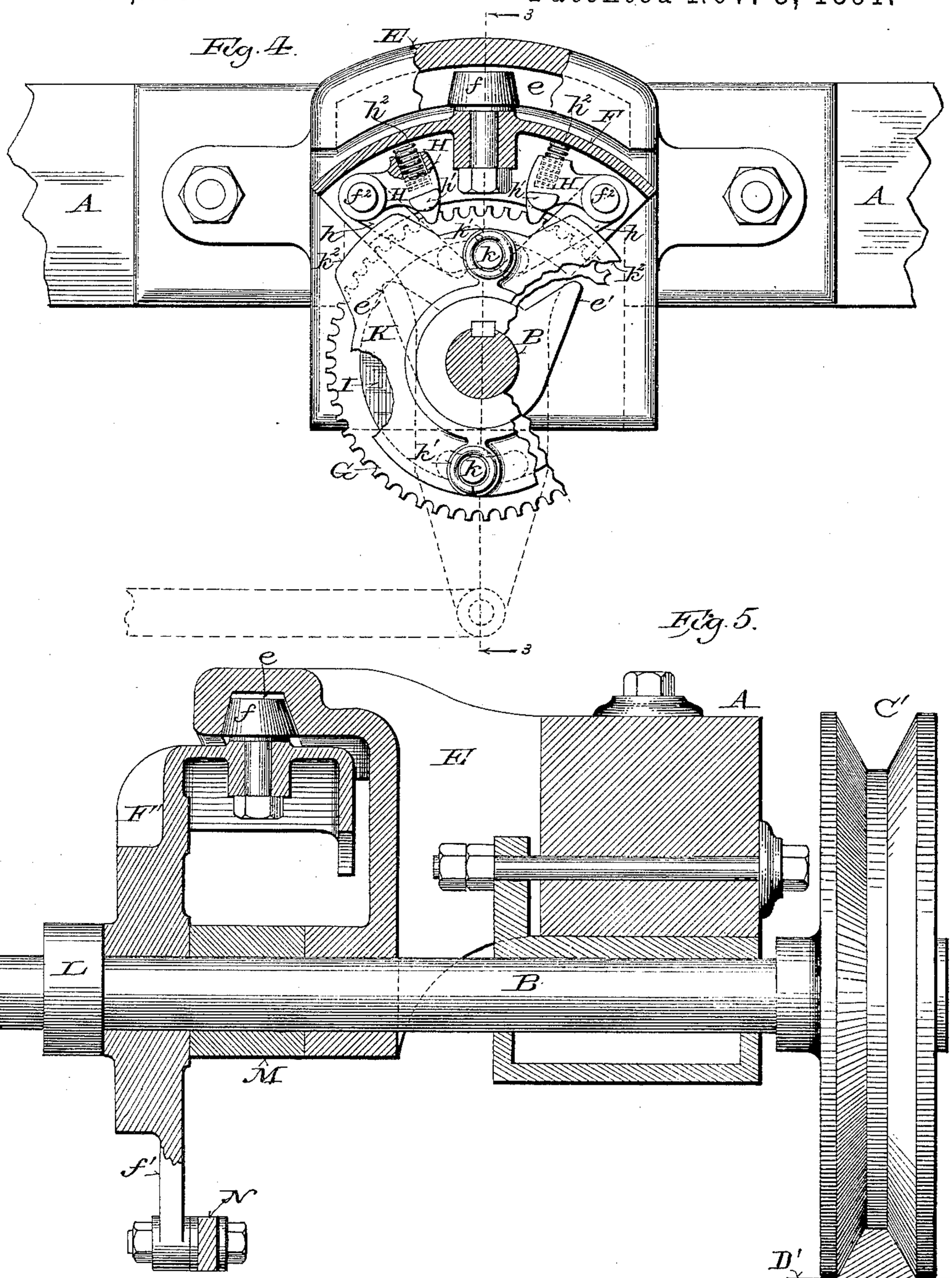


Fig. 5.

Witnesses:
E. C. Ashley
Chas. L. Goss.

Inventors,
John H. Vorstman
Edward F. Niedecken
By Wickler Howson & Smith Bottum & Vilas
Attorneys.

UNITED STATES PATENT OFFICE.

JOHN H. VORSTMAN AND EDWARD F. NIEDECKEN, OF MILWAUKEE, WISCONSIN.

SAW-MILL-CARRIAGE OFFSET.

SPECIFICATION forming part of Letters Patent No. 462,286, dated November 3, 1891.

Application filed May 9, 1891. Serial No. 392,166. (No model.)

To all whom it may concern:

Be it known that we, JOHN H. VORSTMAN and EDWARD F. NIEDECKEN, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Saw-Mill-Carriage Offsets; and we do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

The object of our invention is to automatically shift the carriage-frame toward and from the saw-line when the movement of the carriage is reversed, so as to carry the log or timber out of contact with the saw in running the carriage back.

It consists of certain peculiarities in the construction and arrangement of the offsetting mechanism, and particularly of the actuating mechanism, by which the offset is automatically operated, as hereinafter particularly described, and pointed out in the claims.

In the accompanying drawings like letters designate the same parts in the several figures.

Figure 1 is a plan view of a saw-mill carriage, to which our improved offsetting mechanism is applied. Fig. 2 is a side elevation, on an enlarged scale, looking rearwardly from the center of the carriage, of the actuating mechanism by which the offset is operated. Fig. 3 is an axial section of the same. Fig. 4 is a partial elevation of the device viewed as seen in Fig. 2, and showing the pawl-carrier in vertical section, the hub and vertical portion thereof being removed to disclose parts of mechanism covered thereby; and Fig. 5 is an axial section of the offsetting device employed at the opposite end of the carriage from the offsetting and actuating devices. (Shown in Figs. 2 to 4, inclusive.)

A represents the carriage-frame, B B the axles on which it is mounted, C C′ the carriage-wheels, and D D′ the track-rails, all of the usual or any suitable form and construction. The carriage-wheels C C′ on one side at least of the carriage are preferably grooved or flanged, as shown, to engage with a V-shaped rail D′, or a rail of suitable construction to guide the carriage and to restrain the truck-wheels and axles from lateral movement with reference to the travel of the carriage. The carriage-frame A is allowed a limited sidewise or lateral movement upon its supporting-axles B B, sufficient to carry the log or timber away from and clear of the saw in running the carriage back.

E E′ are brackets attached to the inside of the rear side rail of the carriage-frame A, one at or near each end of the carriage directly over axles B B. F F′ are arms loosely mounted upon the axles B B adjacent to said brackets, and provided at their outwardly-extending ends with shifting-rollers *f f*, which engage with laterally-inclined grooves *e e* in said brackets, said grooves being formed vertically in the arc of a circle concentric with the axles B B, on which said arms F F′ are mounted. These arms F F′ are formed below the axles with extensions *f′ f′*, which are connected by a rod N, so that the movement of one will produce a like and simultaneous movement of the other.

Between the arm F and the adjacent bracket E a ratchet-wheel G is keyed upon the carriage-axle, and in the upper chambered portion of said arm, which serves as a pawl-carrier, are pivoted on pins f^2 f^2, extending through the same, pawls H H, arranged to act in opposite directions with said ratchet-wheel. They are formed with arms *h h*, projecting at the back side of the ratchet-wheel toward the axle on which it is mounted and arranged to engage with stops *e′ e′*, (shown in Figs. 3 and 4,) formed with or attached to bracket E in proper positions to throw said pawls out of engagement with the ratchet-wheel at the desired points in the movement of the pawl-carrier.

Between the ratchet-wheel G and the pawl-carrier F the friction-disk K is loosely mounted upon the hub of said ratchet-wheel, as clearly shown in Figs. 2, 3, and 4. It is provided on one side with pins *k k*, which project through arc-shaped slots f^3 f^3 in the pawl-carrier, and spiral springs *k′ k′*, placed around said pins in sockets formed for their reception in the pawl-carrier to force the disk K snugly against the adjacent face of said

ratchet-wheel G, or an interposed washer I, of any suitable material, affording a suitable friction and wearing surface. The disk K is formed on the upper edge with projections k^2 k^2, which are arranged to engage with lugs h' h', projecting from the sides of pawls H H, and carry and hold the latter out of engagement with the ratchet-wheel, as hereinafter explained. The pawl-carrying arm F is held laterally in place upon the axle B between and by the ratchet-wheel G and the collar L, fixed upon said shaft, as shown in Fig. 3, and the corresponding arm F′ at the opposite end of the carriage is held in place between and by a similar collar L and a collar M, fixed upon the carriage-axle in a position corresponding with the position of the ratchet-wheel.

We do not wish to be understood as limiting ourselves to the employment of the particular form of offsetting mechanism herein shown and described, inasmuch as the actuating mechanism, by which the offset is shifted automatically when the movement of the carriage is reversed, may be applied to various forms of offsetting devices.

Our improved device operates as follows: When the carriage is started forward in the direction indicated by the arrow in Fig. 1, the ratchet-wheel G, engaging with the front pawl H, swings the pawl-carrier F, and, through the connecting-rod N, the corresponding arm F′ at the opposite end of the carriage to the left, as shown in Fig. 2, thereby moving the shifting-rollers f f into the corresponding ends of the inclined slots e e in brackets E E′ and carrying the frame A forward toward the saw-line, (indicated at 1 1, Fig. 1.) As the friction-rollers approach the ends of the slots in brackets E E′, as above mentioned, the arm h on the forward pawl H engages with the adjacent stop e', as indicated by dotted lines in Fig. 2, and thereby throws said pawl out of engagement with said ratchet-wheel, arresting the further movement of the arms F F′ in that direction. The ratchet-wheel acting upon the friction-disk K causes it to turn in the same direction, carrying the rearward projection k^2 under the lug h' on the rearward pawl H, and lifting and holding the same out of engagement with said ratchet-wheel, thereby preventing the noise and wear of its dragging over the teeth of said ratchet-wheel. When the pins k k reach the ends of the slots f^3, the further advance movement of said disk is arrested, while the rearward projection k^2 is still in engagement with the lug h' of the rearward pawl. The ratchet-wheel now slips on the disk K or the interposed washer I, which has come to rest. The carriage-frame is held in working position toward the saw-line during its advance; but when its movement is reversed the ratchet-wheel G turns the friction-disk K in the opposite direction, first moving the rearward projection k^2 out of engagement with the lug h' on the rearward pawl H, allowing the latter to drop into engagement with said ratchet-wheel. The ratchet-wheel now acting through the rearward pawl turns the arms F and F′ to the right, as shown in Figs. 2 and 4, until the arm h on the rearward pawl strikes the rearward stop e', thus throwing said pawl out of engagement with the ratchet-wheel. At the same time the forward projection k^2 is carried underneath the lug h' on the forward pawl H, lifting it out of engagement with said ratchet-wheel, in the manner above explained. The pins k on the friction-disk, striking the opposite ends of the slots f^3 in the arm F, arrest the further movement of said disk, while the forward projection k^2 thereon is still underneath and in engagement with the lug on the forward pawl, and the ratchet-wheel during the further return movement of the carriage slips on said friction-disk or the interposed washer f. As the carriage returns to the starting-point and its movement is reversed the operation of the offsetting and offset-actuating mechanism hereinbefore explained is repeated, and the carriage-frame A is shifted toward or from the saw-line whenever and at whatever points in its travel the movement of the carriage is reversed.

Various changes may be made in the details of construction and arrangement of the parts, of which our improved offset is composed within the intended scope of our invention—as, for instance, a single double-acting pawl may be substituted for two separate pawls to accomplish the same results, and the stops both for the pawl-carrier and for the friction-disk may be variously constructed without affecting the mode of operation of the offset.

We claim—

1. The combination, with the carriage-frame and its supporting wheels and axles, said frame being movable transversely to the direction of its travel, of a ratchet-wheel mounted upon one of said axles, a vibrating pawl-carrier provided with a pawl adapted to engage with said ratchet-wheel, suitable offsetting mechanism connected with said pawl-carrier and with the carriage-frame and adapted to shift the latter transversely to the saw-line, and a stop adapted to engage with said pawl and throw the same out of engagement with the ratchet-wheel at the desired point, substantially as and for the purposes set forth.

2. The combination, with the carriage wheels and axles and frame laterally movable with reference to the direction of its travel, of a ratchet-wheel mounted upon one of said axles, a pawl-carrier movable in the direction of the travel of the carriage and provided with pawls adapted to work with said ratchet-wheel, suitable offsetting mechanism connected with said pawl-carrier and the carriage-frame and arranged to shift the latter transversely to the saw-line when the movement of the carriage is reversed, and stops arranged to disengage the pawls from said ratchet-wheel and to ar-

rest the movement of the pawl-carrier at the proper points, substantially as and for the purposes set forth.

3. The combination, with the carriage-frame and its supporting wheels and axles, said frame being movable laterally upon said axles, of a ratchet-wheel mounted upon one of said axles, a pawl-carrier loosely mounted upon said axle and provided with pawls adapted to engage with and work in opposite directions with said ratchet-wheel, offsetting mechanism connected with said pawl-carrier and the carriage-frame and adapted to automatically shift the latter toward and from the saw-line when the movement of the carriage is reversed, and stops arranged to disengage the actuating-pawl from said ratchet-wheel, and thereby arrest the movement of the pawl-carrier at the desired points, substantially as and for the purposes set forth.

4. The combination, with the carriage-frame and its supporting wheels and axles, said frame being movable transversely to the direction of its travel, of a ratchet-wheel mounted upon one of said axles, a vibrating pawl-carrier loosely mounted upon said axle and provided with pawls arranged to act in opposite directions with said ratchet-wheel, springs holding said pawls normally in engagement with said ratchet-wheel, stops arranged to engage with projections on said pawls and to throw the latter out of engagement with the ratchet-wheel and arrest the movement of the pawl-carrier in either direction at the proper points, and suitable offsetting mechanism connected with said pawl-carrier and with the carriage-frame, so as to automatically shift the latter toward and from the saw-line when the movement of the carriage is reversed, substantially as and for the purposes set forth.

5. The combination, with the carriage-frame and its supporting wheels and axles, said frame being movable transversely to the saw-line, of a ratchet-wheel mounted upon one of said axles, a vibrating pawl-carrier provided with a pawl adapted to work with said ratchet-wheel and having a projection engaging with an inclined groove or slot on the carriage-frame, and stops arranged to disengage said pawl from the ratchet-wheel and to arrest the movement of the pawl-carrier in either direction at the desired points, substantially as and for the purposes set forth.

6. The combination, with the carriage-frame and its supporting wheels and axles, said frame being movable transversely to the direction of its travel, of a ratchet-wheel mounted upon one of said axles, a vibrating pawl-carrier loosely mounted upon said axle and provided with one or more pawls adapted to act in opposite directions with said ratchet-wheel, a friction-disk interposed between said pawl-carrier and ratchet-wheel and having projections adapted to engage with said pawls and hold the same out of engagement with the ratchet-wheel, stops arranged to disengage the actuating-pawl from said ratchet-wheel and to arrest the movement of the pawl-carrier in either direction at the desired points, and offsetting mechanism connected with said pawl-carrier and with the carriage-frame, so as to automatically shift the latter when the movement of the carriage is reversed, substantially as and for the purposes set forth.

7. The combination, with the carriage-frame and its supporting wheels and axles, said frame being movable transversely to the direction of its travel, of a ratchet-wheel mounted on one of the axles, a pawl-carrier provided with one or more pawls adapted to work with said ratchet-wheel in opposite directions, a friction-disk movable a limited distance independently of the pawl-carrier and having projections adapted to engage and hold either pawl out of engagement with said ratchet-wheel, and stops arranged to limit the movement of the pawl-carrier in either direction at the proper points, substantially as and for the purposes set forth.

8. The combination, with the carriage-frame and its supporting wheels and axles, said frame being movable transversely to the direction of its travel, of a ratchet-wheel mounted upon one of said axles, a vibrating pawl-carrier loosely mounted upon said axle and provided with pawls adapted to act in opposite directions with said ratchet-wheel, stops arranged to disengage said pawls from said ratchet-wheel and to arrest the movement of the pawl-carrier in either direction at the desired points, a friction-disk interposed between said ratchet-wheel and pawl-carrier and provided with a pin projecting into a slot in said pawl-carrier and with projections on its periphery adapted to engage with said pawls and to move and hold the same out of engagement with the ratchet-wheel, a spring interposed between said disk and the pawl-carrier and tending to hold said disk in contact with the ratchet-wheel, and suitable offsetting mechanism connected with said pawl-carrier and with the carriage-frame, so as to shift the latter toward and from the saw-line when the movement of the carriage is reversed, substantially as and for the purposes set forth.

9. The combination, with the carriage-frame and its supporting wheels and axles, said frame being movable transversely to the direction of its travel, of a ratchet-wheel mounted upon one of said axles, a pawl-carrier loosely mounted upon said axle and provided with pawls adapted to act in opposite directions with said ratchet-wheel, stops arranged to disengage said pawls from said ratchet-wheel and to arrest the movement of said pawl-carrier in either direction at the desired points, and a vibrating arm mounted upon an axle at or near the opposite end of the carriage and connected with said pawl-carrier, said arm and pawl-carrier having projections engaging with inclined slots or grooves on the carriage-frame, so as to shift the same toward or from the saw-line when said arm and pawl-

carrier are swung in either direction by the ratchet-wheel, substantially as and for the purposes set forth.

10. The combination, with the carriage-frame and its supporting wheels and axles, said frame being movable transversely to the direction of its travel, of a ratchet-wheel mounted upon one of the carriage-axles, a vibrating pawl-carrier provided with pawls, each adapted to act with said ratchet-wheel in a direction opposite to the other, stops arranged to disengage the actuating-pawl from said ratchet-wheel and to arrest the movement of the pawl-carrier at the desired point in either direction, a device arranged to hold the idle pawl out of engagement with the ratchet-wheel, and suitable offsetting mechanism connected with said pawl-carrier and with the carriage-frame, so as to shift the latter toward and from the saw-line when the movement of the carriage is reversed, substantially as and for the purposes set forth.

In testimony that we claim the foregoing as our own we affix our signatures in presence of two witnesses.

JNO. H. VORSTMAN.
EDW. F. NIEDECKEN.

Witnesses:
CHAS. L. GOSS,
E. G. ASMUS.