No. 675,249. Patented May 28, 1901.

B. E. SERGEANT.

SAWMILL CARRIAGE.

(Application filed Mar. 16, 1901.)

(No Model.) 2 Sheets—Sheet 1.

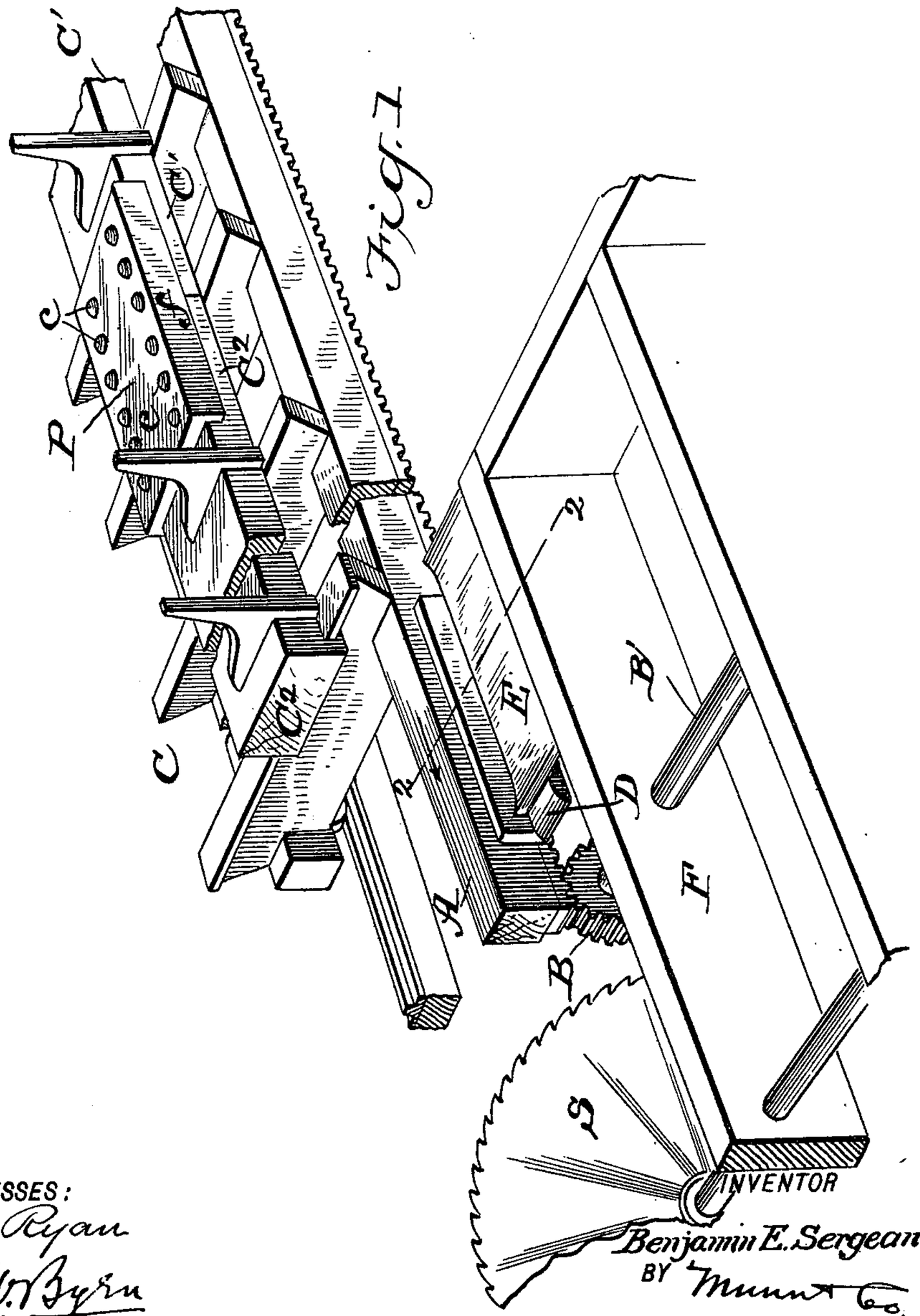

Fig. 1.

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Fig. 3.

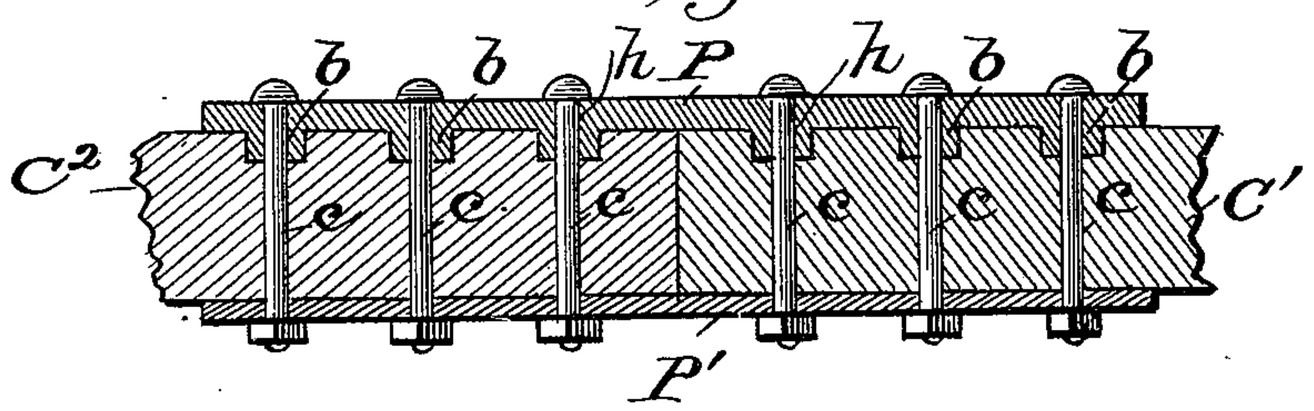


Fig. 4.

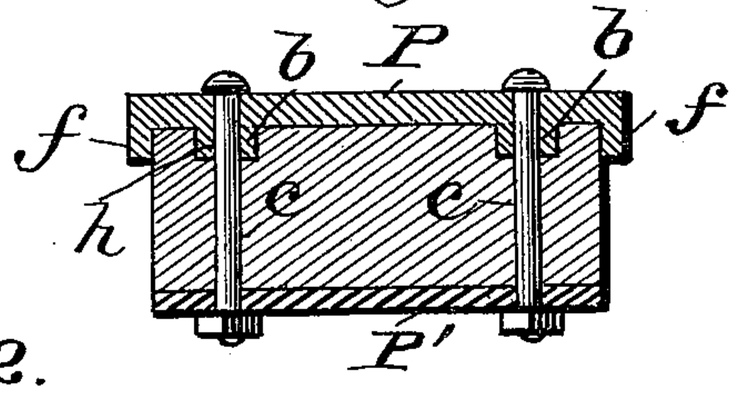


Fig. 2.

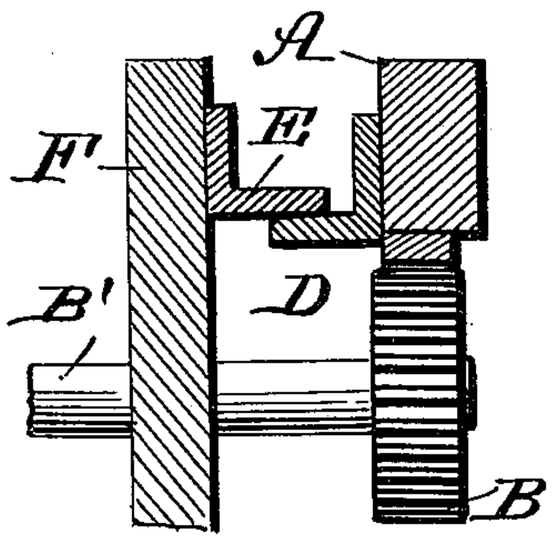


Fig. 5

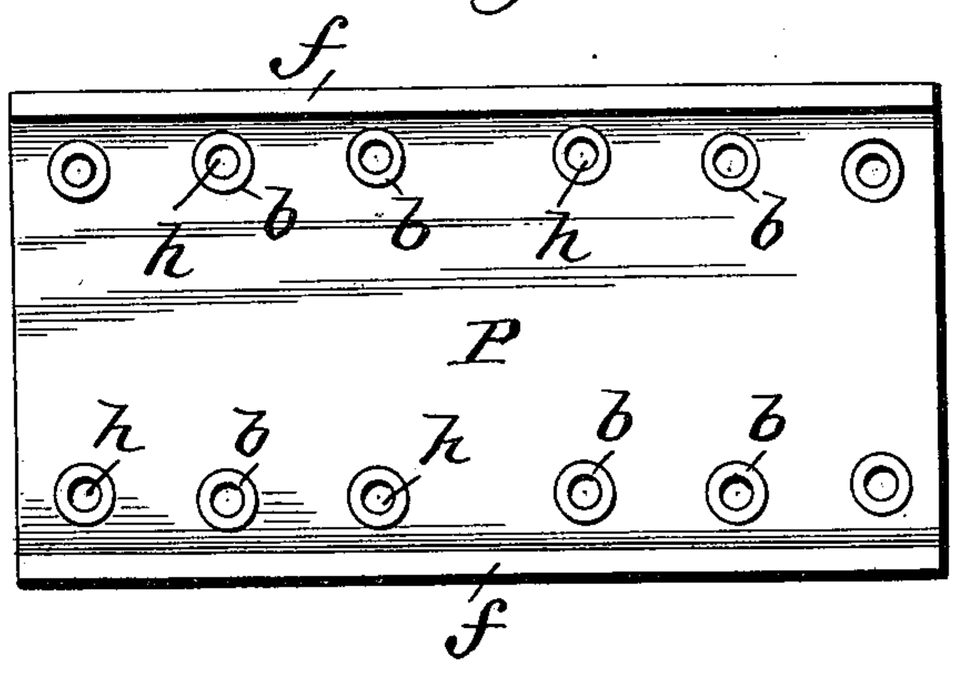
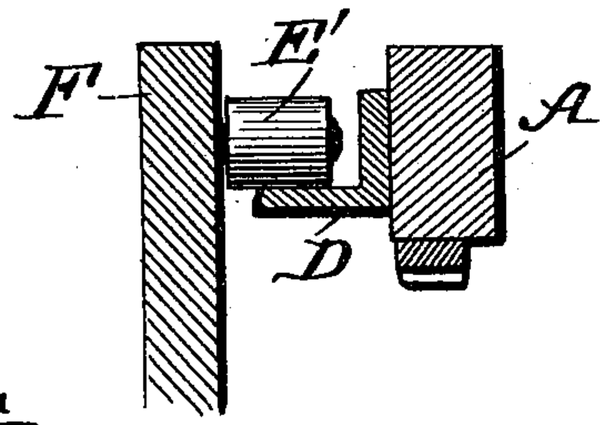


Fig. 2ª



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BENJAMIN EAVENS SERGEANT, OF GREENSBORO, NORTH CAROLINA.

SAWMILL-CARRIAGE.

SPECIFICATION forming part of Letters Patent No. 675,249, dated May 28, 1901.

Application filed March 16, 1901. Serial No. 51,428. (No model.)

To all whom it may concern:

Be it known that I, BENJAMIN EAVENS SERGEANT, of Greensboro, in the county of Guilford and State of North Carolina, have invented a new and useful Improvement in Sawmill-Carriages, of which the following is a specification.

My invention is in the nature of certain improvements in sawmill-carriages designed to hold the projecting end of the rack-bar into more positive and certain engagement with the subjacent pinion which drives it and to provide also a more convenient, stronger, and practical construction of sectional log-beam for the carriage.

My invention is shown in the accompanying drawings, in which—

Figure 1 is a perspective view from the saw-frame side. Fig. 2 is a section through line 2 2 of Fig. 1. Fig. 2ª is a similar view of a modification. Fig. 3 is a longitudinal section, and Fig. 4 a cross-section through the splice-joint of the sectional log-beam, and Fig. 5 a detail underneath view of the splice-plate.

In sawmill-carriages which operate with the rack-and-pinion feed the rack-bar usually extends some distance past the end of the log-beam and knees in order to permit the carriage to be projected sufficiently far past the saw-frame to allow the log to be rolled onto the carriage. When the carriage is in this position, the weight of the log is not over the pinion and the engagement of the rack with the pinion is not positive and certain, because the rack and its wooden sill, which project beyond the carriage proper, are liable to spring up slightly and allow the teeth of the pinion to slip under the teeth of the rack, damaging the teeth, for the reason that there is no weight over the rack to hold it down onto the pinion in safe and certain engagement therewith. A is such projecting portion of the rack and its carrying-sill which extend beyond the log-carriage proper, (shown at C,) and B is the driving-pinion on a shaft B′, journaled in bearings in the saw-frame F. The position of the saw is shown at S, and both this saw and the pinion are driven by belts and gearing in the usual way, the pinion being provided with differential pulleys and reversing mechanism of any of the usual forms. When the log-carriage is in the position shown for loading the log onto the carriage, it will be seen that the portion A of the rack and sill only are resting on the pinion, and as the weight of the log at this time is not above the pinion the free extension of the part A is liable to spring up, allowing a slipping between the cogs of the rack and pinion, with the possibility of breakage. To prevent this, I attach rigidly to the extended sill A of the log-carriage a horizontally-projecting flange D, and on the adjacent side of the saw-frame F, I rigidly fix another horizontally-arranged flange E, which is adjusted sufficiently high to barely overhang the flange D, which is attached to and moves with the carriage. These flanges have their ends beveled or rounded, the ends of the upper flange E being turned up and those of the lower flange D turned down, so that they pass smoothly one onto the other with a sliding contact without risk of butting endwise against each other. These flanges may be made of iron of a right-angle cross-section whose vertical members are bolted to the wooden sills of the saw-frame and log-carriage, respectively. When the log-carriage is drawn back to receive its log and the part A only of the carriage is resting on the driving-pinion, the flange D of the carriage is resting under the stationary flange E of the saw-frame, and when the forward feed takes place the flange E holds down the flange D, and with it the extension A of the rack-bar and sill, so that the latter cannot rise and no separation between the teeth of the pinion and the rack can take place. The flanges D and E are made of sufficient length to remain engaged until the extension A has passed by the pinion and the log is brought to a position above the pinion, at which time the weight of the log holds the rack and pinion sufficiently engaged.

In carrying out my invention I do not confine myself to two flanges having a sliding contact with each other, as one of the bearings may be made in the form of rollers E′, which secure the advantages of rolling friction, as seen in Fig. 2ª.

In constructing log-carriages which are adapted to long lengths of timber it has been the custom to make the log-beam in section.

This log-beam is a long stick of timber running the full length of the carriage. It is necessary to make it in sections in order to load them onto cars and also to haul them in wagons and to facilitate the putting of them down in installing the plant. The usual method of lapping, keying, and plating them is objectionable and troublesome, both in arranging for it at the shops and also in putting it down, and, moreover, the lap-joint of wood is objectionable, because the wood shrinks and the necessary jarring of the carriage allows the joint to soon become loose. In my invention (see Figs. 3, 4, and 5) I do not make a lap-joint in the wood, but the two sections C^2 and C' of the beam are very closely matched at the ends and then butted endwise against each other to form only a straight joint in the wood at right angles to the length of the beam. Such joint is preferred for the reason that it does not open from shrinkage, as wood does not shrink to any appreciable extent in endwise direction, whereas the lateral or sidewise shrinkage of wood is very great and allows the longitudinal joints of a lapped construction to open very much and to become loose. The two sections of the beam having been thus fitted together in alinement, I provide a pattern-plate having laid off in it a series of holes corresponding in position to a series of bosses on a metal splice-plate hereinafter described and lay this pattern-plate equally on the two adjacent ends of the log-beam sections and mark the position of the holes on the beam ends. I then, with a two-inch auger, bore holes at these points two inches deep, which in diameter and depth correspond exactly to a series of bosses *b*, formed on a metal splice-plate P. This plate is made of heavy cast iron or steel and is formed with bolt-holes *h*, extending through the bosses, and also with parallel side flanges *f f*, that lap over the side edges of the log-beam and snugly fit the same. After the two-inch holes in the log-beam are bored to the proper depth smaller concentric bolt-holes are bored the balance of the way through the beam from the bottom of each larger hole. The plate P is then applied to the adjacent ends of the log-beam sections with its bosses entering and snugly fitting the holes in the log-beam, which form sockets for the bosses, and bolts *c* are then extended through each hole, firmly clamping the plate and the two ends of the log-beam together. When the nuts are turned up on the lower ends of the bolts, they are made to bear against a flat splice-plate P'. With this construction the nesting of the large bosses in their corresponding sockets in the timber gives an extensive bearing, and the splice of the plates on top and bottom and the flanges at the side prevent any bending of the log-beam at the joint. Furthermore, any lateral shrinkage of the timber causes it to bite more firmly against the bosses and to hold the parts together with a sort of self-tightening joint.

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

1. A sawmill-carriage having a projecting rack portion which extends beyond the carriage proper provided with a bearing adapted, temporarily and during the initial part of the advance to the saw, to take under a stationary bearing and be thereby held down to intimate and positive contact with the driving-pinion substantially as described.

2. A sawmill-carriage having on its rack portion which extends beyond the carriage proper, a bearing, combined with a stationary saw-frame having a corresponding overhanging bearing adapted to temporarily hold down the said rack portion to intimate and positive contact with the driving-pinion substantially as described.

3. A sawmill-carriage having on its rack portion which extends beyond the carriage proper a horizontally-projecting and elongated flange, combined with the saw-frame having a corresponding flange arranged to overhang the first-named flange and temporarily hold it and the said rack portion down to intimate and positive contact with the driving-pinion as described.

4. A sawmill-carriage having a wooden log-beam made in sections butted endwise against each other and having a series of holes of two diameters bored through the same, the larger diameter forming sockets and the smaller ones bolt-holes and a metal splice-plate having bosses fitting the larger sockets and bolts fastening the splice-plate to the ends of the sections substantially as described.

5. A sawmill-carriage having a wooden log-beam made in sections butted endwise against each other and having a series of holes of two diameters bored through the same, the larger holes forming sockets and being concentric with the smaller holes for the bolts, a metal splice-plate having parallel flanges at its sides, and a series of perforated bosses fitting in the sockets, and bolts passing through said perforated bosses and the holes of the beam-sections substantially as shown and described.

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