

UNITED STATES PATENT OFFICE.

JOHN L. PECK, OF NEW HAVEN, CONNECTICUT.

DROP-HAMMER.

SPECIFICATION forming part of Letters Patent No. 536,819, dated April 2, 1895.

Application filed November 13, 1893. Serial No. 490,725. (No model.)

To all whom it may concern:

Be it known that I, JOHN L. PECK, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Drop-Hammers; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a plan view of one form which a drop-hammer constructed in accordance with my invention may assume; Fig. 2, a broken view thereof in side elevation; Fig. 3, a detail view showing the extended position of one of the pairs of toggle levers; Fig. 4, a view in side elevation showing one of the modified forms which my invention may assume.

My invention relates to an improvement in drop-hammers of that class in which the hammer is lifted by means of a plank which plays up and down between two lifting rolls, the object being to produce simple, effective and convenient means for adjusting one of the rolls to compensate for the wear of the plank which plays up and down between them.

With these ends in view my invention consists in certain details of construction and combinations of parts as will be hereinafter described and pointed out in the claims.

In carrying out my invention as herein shown, I have employed a movable lifting roll A and a fixed lifting roll A', located in the same horizontal plane. The shaft B, of the movable roll A, is mounted in sliding-bearings C C, arranged to move horizontally, while the shaft B' of the fixed roll A' is mounted in fixed bearings C' C'. The movement of the movable roll A toward and away from the fixed roll A', is effected by means of two pairs of toggle-levers D D', the inner ends of the levers D' being connected with the shaft B, and the outer ends of the levers D being rigidly connected to a sleeve E, having rocking movement upon a shaft F, having eccentric bearings F' F', mounted in boxes G G, between which the sleeve E is interposed. A handle G' attached to the outer end of one of the eccentric bearings F', is provided for rotating the shaft F to move the toggle-levers inward, and hence the movable roll A. An

arm E' secured to and projecting inward from one end of the sleeve E, is connected with the upper end of an operating lever H, which extends downward, in the usual manner, for operation by the workman at the hammer. A pulley I mounted on the shaft B, provides for the rotation of the movable roll A, while a pulley I' mounted on the opposite end of the shaft B', provides for the rotation of the fixed roll A'. If desired, however, these two rolls may each be provided with gears meshing together, or they may be driven in some other way, the particular manner of driving them being immaterial to my invention.

It will be apparent that when the toggle-levers are lifted into their contracted positions so to speak, the movable lifting-roll A, will be drawn away from the fixed roll A', and that when they are depressed into their extended positions it will be moved toward the same. This movement of the movable roll is designed to be sufficient to cause the same to release and grip the plank J which passes up between the rolls, and carries at its lower end the hammer, which is not shown. Thus in the operation of the drop-hammer, the workman depresses the operating rod H, which is probably connected at its lower end with a treadle, whereby the arm E' is depressed, and the sleeve E turned on the shaft F, thus depressing and straightening the toggle-levers and moving the movable lifting-roll A toward the fixed roll A', until it takes hold of the plank J and raises the same, the rolls being rotated in the direction of the arrows *a a*. Now to release the hammer, the operating rod H is released or lifted, whereby the toggle-levers will be lifted into their contracted positions, and the movable lifting-roll A moved away from the fixed roll A', whereby the plank will be released and the hammer allowed to fall. The rolls, it will be understood, are continuously rotated. The wear and tear of the plank is considerable, particularly in the direction of its reduction in thickness, to compensate for which the shaft F is turned by its handle G', so that the toggle-levers and hence the movable roll A, will be moved toward the fixed roll A', a distance sufficient to compensate for the wear of the plank. In this way and by turning the eccentrically arranged shaft F, the movable roll A may be

moved inward to compensate for the wear of the plank, as long as the same is fit for service. It will be understood, of course, that normally the shaft F does not rotate, and ordinarily also forms a bearing on which the sleeve E rocks.

Instead of connecting the movable lifting-roll with an eccentrically mounted shaft, I may mount it directly upon an eccentrically mounted shaft, as shown in Fig. 4 of the drawings, which represents a movable lifting roll K and a fixed lifting roll K', the former being mounted to turn upon an eccentric sleeve L, having an operating-arm M, which shifts the eccentric so as to cause the said movable roll to move toward or away from the fixed roll K'. The said sleeve is mounted upon a shaft N, having eccentric bearings N', only one of which is shown. One of the said bearings is furnished with a handle N², for turning the shaft eccentrically. When the plank wears, the handle N² is operated to shift the eccentrically mounted shaft N so as to cause the eccentric sleeve L and hence the movable roll K to bodily move toward the fixed roll K'. It will thus be seen that in carrying out my invention, I am not limited to combining the movable roll with an eccentric in any one way.

A drop-hammer provided with an eccentric for adjusting its movable lifting-roll for compensating for wear, is easily adjusted, and both ends of the roll are adjusted in exact correspondence with each other. The adjusting mechanism is, moreover, very simple, and not liable to derangement.

I particularly wish to call attention to the fact that under my improved construction I adjust the movable roll exclusively, and do not disturb the fixed roll, which in prior drop-hammers has been provided at its respective ends with means for adjusting it for compensating for wear. It is, however, objectionable to adjust the fixed roll, because to secure the best results it should be located in the first place in exact alignment with the hammer, and allowed to remain in that position, from which it is displaced, of course, if it is adjusted to compensate for wear. It is disadvantageous, furthermore, to adjust the opposite ends of the roll independently, as accurate results cannot be secured in that way. I adjust the movable roll by connecting it with or mounting it upon an eccentric shaft,

which adjusts both of its ends exactly in correspondence with each other.

I would have it understood that I do not limit myself to the exact construction herein shown and described, but hold myself at liberty to make such changes and alterations therein as fairly fall within the spirit and scope of my invention. I am aware, however, that it is old to employ an eccentric for simultaneously and correspondingly adjusting both ends of the movable roll of a drop-hammer for taking up wear. I am also aware that it is old to employ a toggle-mechanism for moving one of the two rolls of a drop-hammer toward and away from the other to grip and release the plank, and do not therefore claim either of the constructions broadly.

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

1. In a drop-hammer, the combination with a movable and a fixed lifting roll, of a sleeve means connected with the sleeve for operating the movable roll back and forth with respect to the fixed roll, an eccentric shaft passing through the sleeve which oscillates upon it, and means connected with the said shaft for turning the same to adjust the movable roll to compensate for wear, substantially as described, and whereby both ends of the movable roll may be simultaneously and correspondingly moved toward the fixed roll for taking up wear.

2. In a drop-hammer, the combination with a movable and fixed lifting roll, of sliding bearings for the shaft of the movable roll, toggle levers connected with the said shaft, a sleeve with which two of the said levers are connected, an eccentric shaft on which the said sleeve is mounted, means for rotating the said shaft to bring its eccentrics into play for adjusting the movable roll through the medium of the toggle levers, and means for oscillating the sleeve to move the roll back and forth for gripping and releasing the plank, substantially as described.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JOHN L. PECK.

Witnesses:

GEO. D. SEYMOUR,
FRED C. EARLE.