(No Model.)

W. E. MILLER.

DIE FOR FORGING AXLE FLAPS.

No. 346,306. Patented July 27, 1886.

Fig. 1

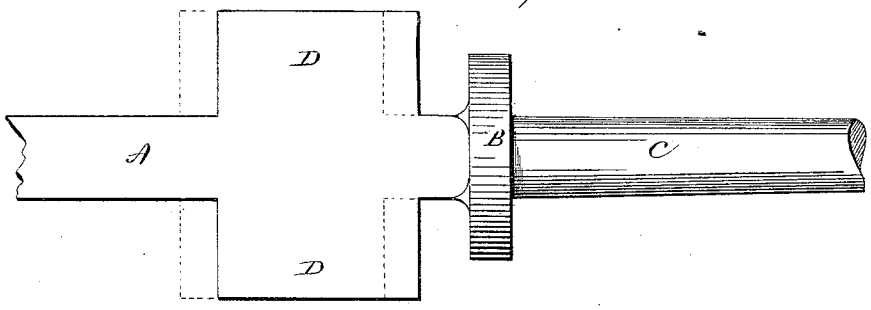


Fig. 2

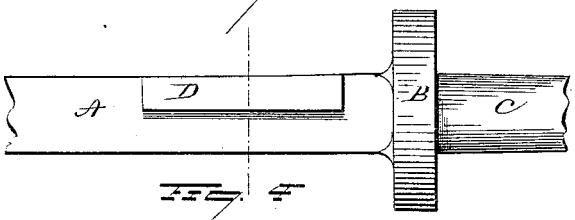


Fig. 3

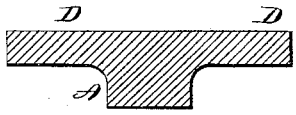


Fig. 4

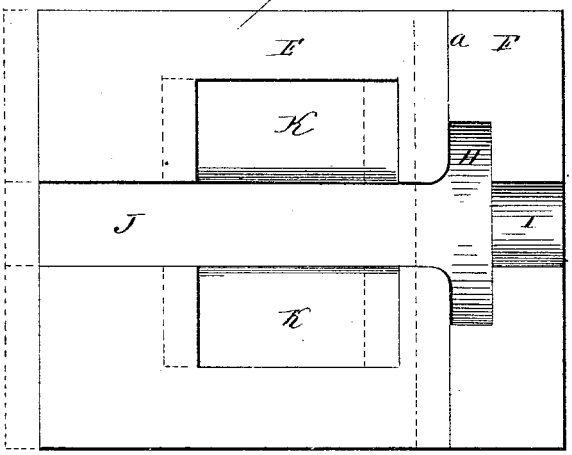


Fig. 5

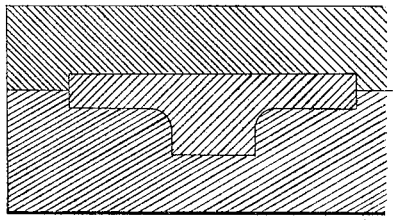


Fig. 6

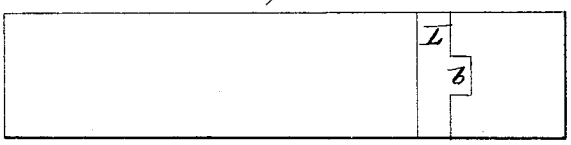
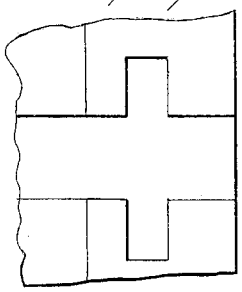


Fig. 7



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UNITED STATES PATENT OFFICE.

WILLIS E. MILLER, OF NEW HAVEN, CONNECTICUT.

DIE FOR FORGING AXLE-FLAPS.

SPECIFICATION forming part of Letters Patent No. 346,306, dated July 27, 1886.

Application filed May 17, 1886. Serial No. 202,383. (No model.)

To all whom it may concern:

Be it known that I, WILLIS E. MILLER, of New Haven, in the county of New Haven and State of Connecticut, have invented a new Improvement in Dies for Forging Axle-Flaps; and I do hereby declare the following, when taken in connection with 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 top view of so much of the axle as will illustrate the invention; Fig. 2, a side view of the same; Fig. 3, a transverse section through the flaps; Fig. 4, a top view of the lower part of the die; Fig. 5, a transverse section through the lower and upper part of the die cutting through the flap-cavities; Fig. 6, a side view showing the die extended; Fig. 7, a modification.

This invention relates to an improvement in the manufacture of that class of carriage-axles which are constructed with flaps or wings projecting laterally therefrom to form an extended support or bearing for the spring. One end of such an axle is shown in Figs. 1, 2, and 3.

A represents the axle proper; B, the collar; C, the axle-arm. From the axle, upon opposite sides, a wing, or what is commonly called a "flap," D, projects flush with the top of the axle, and so as to form an extended support, upon which the spring may rest. The distance of the spring-bearing from the collar in different axles varies to a considerable extent for different carriages or different carriage-makers. The flaps are formed in dies swaged into shape, and as an integral part of the axle.

As heretofore practiced, different dies have been made for different axles, the dies having a cavity in which the collar and axle-arm may rest, and also having a cavity to receive the axle, with cavities for the flaps. The collar serves to locate the axle in the dies, so that the flaps may be in the proper relation to the collar; hence a separate and independent die is required for each variation in the distance between the collar and the flaps.

The object of my invention is to avoid this multiplicity of dies; and it consists in dividing the die transversely, and between the cavity for the collar and the cavities for the flaps, and whereby the die may be extended to increase the distance between the collar and flap cavities, and as more fully hereinafter described.

E represents one division, and F the other division, of the die, the division being on the line *a*, preferably at the inner face of the collar. In the part F a cavity, H, is made, corresponding to the shape of the collar, and with a central cavity, I, extending therefrom, corresponding to the axle-arm in the part E, and in line with the axle-arm a cavity, J, is formed, corresponding to the body of the axle, and at each side of the cavity J is a cavity, K, corresponding to the shape of the flap required. The upper and lower parts of the die form corresponding cavities, the two parts being represented as closed upon the axle in Fig. 5 in transverse section.

The two parts are constructed so that the cavities H and K are distant from each other the shortest distance at which the flaps are required to be formed—say as seen in Fig. 4. If, then, a greater distance is required, the two parts E F are separated and a piece, L, introduced to increase the length to the extent which it is required to separate the flaps from the collar, and as seen in Fig. 6 and in broken lines, Fig. 4.

A convenient construction for the parts is to construct one with a tongue, *b*, and the other with a corresponding groove, and the piece to be introduced with corresponding tongue and groove, so that they may be set together, as seen in Fig. 6, and then clamped on the anvil. The die becomes extended according to the thickness of the piece introduced, and these pieces may vary according to the position of the flap on the axle, the pieces introduced being interchangeable one for another. The cavities in the part F are easily formed, they being of a cylindrical character. Therefore, instead of introducing a piece between the parts E and F, a part, F, may be formed extended inward from the face of the collar to the increased length required—say as seen in Fig. 7—which will give the same extension as by the introduction of the piece shown in Fig. 6. I therefore do not wish to be understood as limiting the extension of the die to the introduction of independent pieces between the two parts.

By my invention a single die will produce the same size flap upon the same-sized axle, the distance between the flap and collar being

varied according to the extension of the die. Preferably I make the extension alike in both the upper and lower dies; but inasmuch as the lower die, in which the axle rests, will be sufficient to support the collar and locate the axle, the cavity for the collar may be omitted and the upper die only extend so far toward the collar as to completely form the flaps.

I claim—

1. The herein-described improvement in dies for forming flaps upon carriage-axles, made in two parts, E F, with a cavity for the collar in one and cavities for the body of the axle and flaps in the other, the said parts made extensible, substantially as described, and whereby under such extension the distance between the collar-cavity and the cavities for the flaps may be varied.

2. The herein-described improvement in dies for forming flaps upon carriage-axles, the said dies made in two parts, E F, with a cavity for the collar in one and a cavity for the body of the axle and flaps in the other, the said parts separable and combined with other part or parts adapted to be introduced between the said two parts, whereby the die is extended or contracted to increase or diminish the distance between the flaps and the collar.

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Witnesses:

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