No. 778,180. PATENTED DEC. 20, 1904.

E. EINFELDT.

DEVICE FOR FORMING SHOULDERS ON SPOKES.

APPLICATION FILED MAY 11, 1904.

NO MODEL.

Fig. 1.

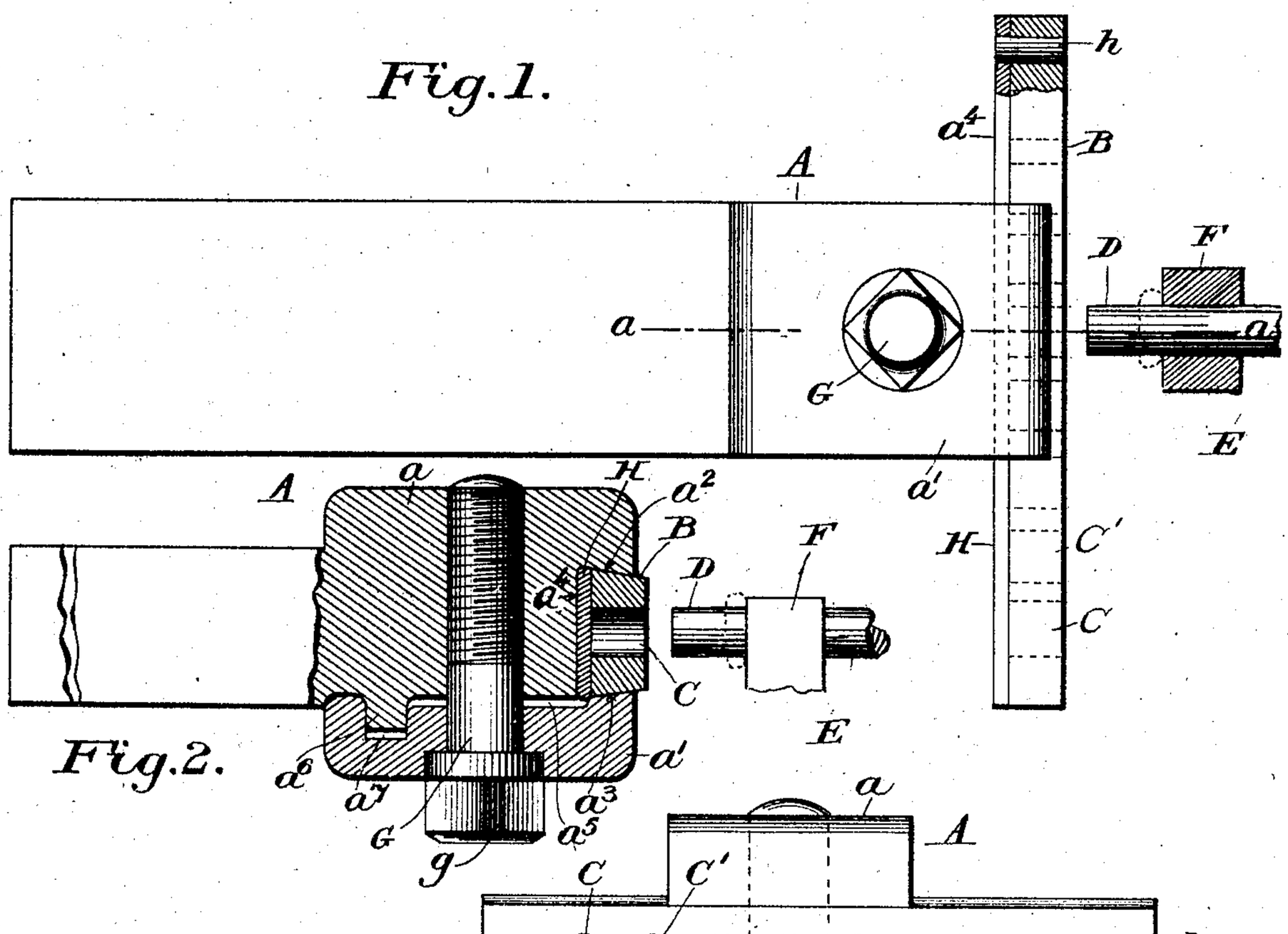


Fig. 2.

Fig. 3.

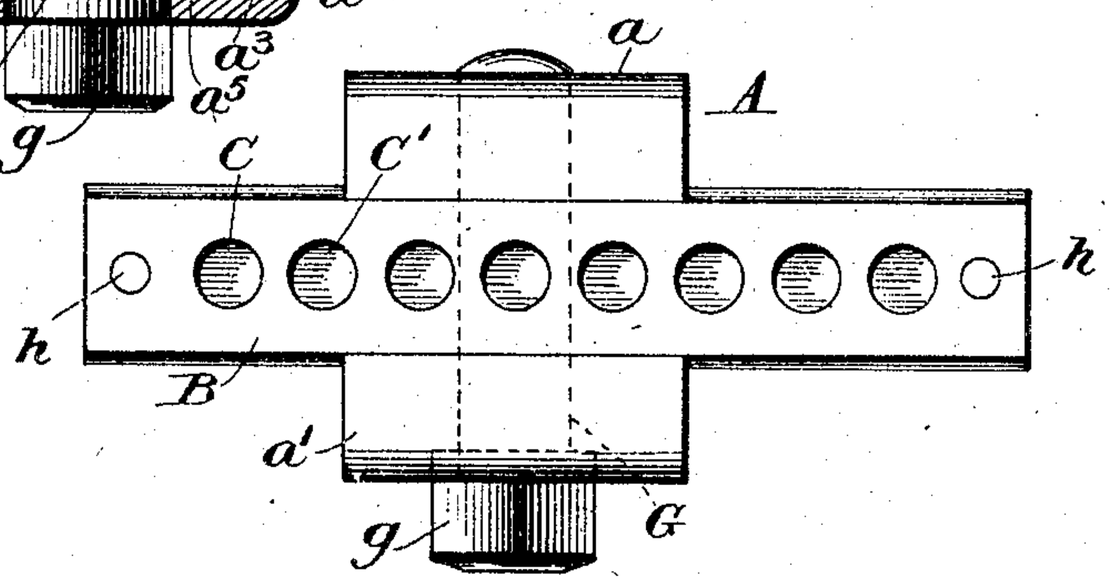


Fig. 4.

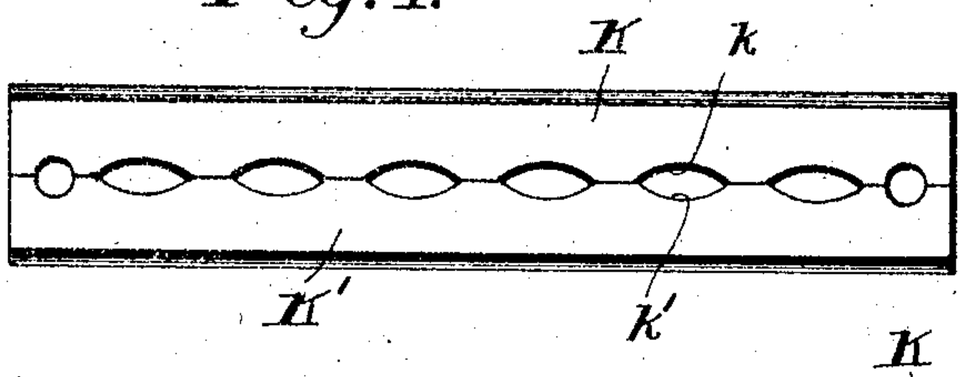
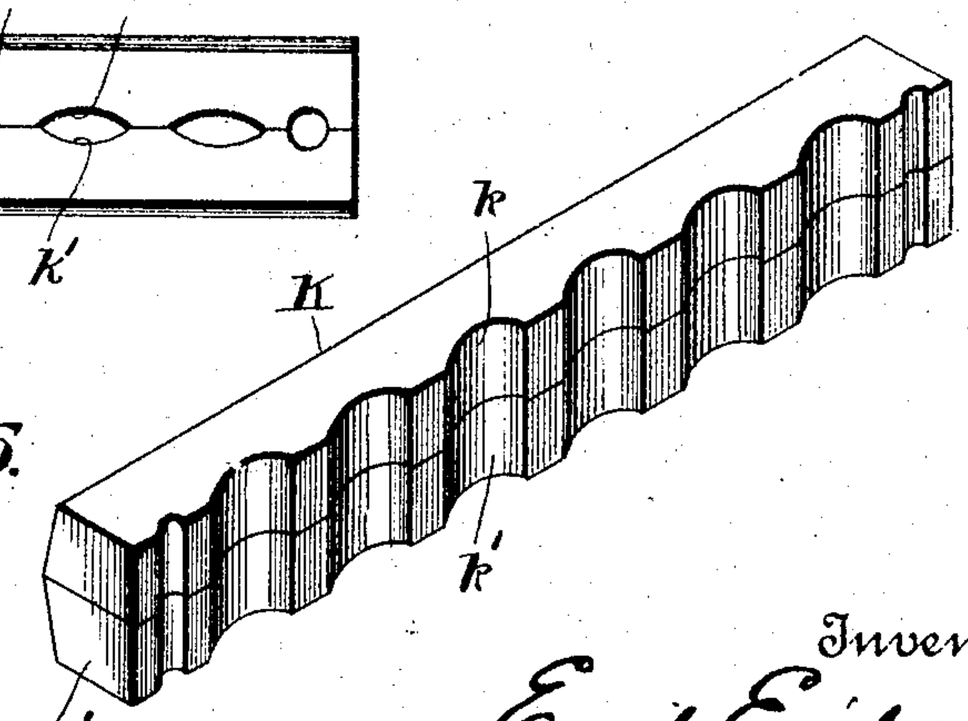


Fig. 5.



Witnesses
F. J. Elmore
A. W. & Kennedy.

Inventor
Emil Einfeldt
By P. J. Dodge
Attorney

No. 778,180. Patented December 20, 1904.

UNITED STATES PATENT OFFICE.

EMIL EINFELDT, OF DAVENPORT, IOWA, ASSIGNOR TO BETTENDORF METAL WHEEL COMPANY, A CORPORATION OF IOWA.

DEVICE FOR FORMING SHOULDERS ON SPOKES.

SPECIFICATION forming part of Letters Patent No. 778,180, dated December 20, 1904.

Application filed May 11, 1904. Serial No. 207,393.

To all whom it may concern:

Be it known that I, EMIL EINFELDT, of Davenport, county of Scott, and State of Iowa, have invented a new and useful Improvement in Devices for Forming Shoulders on Spokes, of which the following is a specification.

In the production of metal wheels it is customary in certain methods of manufacture to form on the spoke previous to its assemblage in operative relation to the rim a shoulder adjacent to the end of the spoke, which shoulder when the parts of the wheel are assembled will bear against the inner face of the rim and which, in connection with a head subsequently formed on the outer end of the spoke, will fasten the same securely to the rim. In the formation of this shoulder it has been customary to firmly clamp the spoke near its end and to act on the projecting end with a female die corresponding in cross-section to the shape of the spoke and of a depth less than the length of the projecting end of the same, the result being that on the advance of the die it will surround the spoke and encountering its end the continued movement of the die will upset that portion of the spoke between the face of the die and the spoke-holding clamp, thereby forming a shoulder. It has been found in practice that the repeated actions of the die on the ends of the spokes wear the former, causing it to become enlarged and otherwise unfit for proper action and necessitating its frequent renewal, which has been accomplished by removing the worn die from its carrying member and replacing it with a new one. This interferes with the regularity of the work and is a source of much trouble, causing waste of time and considerable expense.

The object of my invention is to overcome these objections; and it consists, primarily, in providing a die plate or member with a plurality of female dies or holes and means whereby one or the other of the holes may be disposed at will in relation to the spoke end to act on the same, so that when one die-hole becomes worn a new one is immediately available.

In its preferred embodiment the die-holes are arranged side by side in a plate mounted in a head in such manner that the plate may be adjusted relatively to the head to bring the different holes respectively opposite the clamped end of the spoke; but it will be understood that other forms of embodiment may be adopted provided that the different dies may be readily brought into active relation to the spoke at will.

In the accompanying drawings, Figure 1 is a top plan view of my improved device, showing the relation of the die-plate to the clamped spoke. Fig. 2 is a vertical sectional elevation through the same on the line *a a*. Fig. 3 is a face view of the die-plate and its carrying-head. Fig. 4 is a face view of the die-plate in modified form. Fig. 5 is a view showing how the die-openings are formed in a plate of the construction of Fig. 4.

Referring to Figs. 1, 2, and 3, A represents a carrying or supporting head in which is mounted a horizontal die-plate B, formed with a number of female dies or holes C C′, &c., preferably extending therethrough and adapted to act on the projecting end D of a spoke E, held firmly and fixedly between spoke-clamps F.

In the preferred arrangement of the foregoing parts the clamped spoke is held fixedly, and the head is moved to and from the same, so that the hole in the die-plate, which for the time being is opposite or in line with the end of the spoke, will on the advance of the head be brought into action and form the shoulder.

The die-plate is held in the head in such manner that it may be adjusted endwise, so as to bring opposite the spoke and in active relation thereto any one of the die-holes, to the end that in the event of the one in operation becoming worn a new die-hole may be at once brought into action by shifting the plate endwise in the head. This adjustment is accomplished by forming the head of two clamping members or jaws a a', one of which, the jaw a, is fixed, while the other is relatively movable, which jaws are formed with inclined clamping-faces a^2 on the fixed jaw and a^3 on the movable jaw, adapted to clamp between them the opposite edges of the die-plate, which are correspondingly beveled, so that

when the jaws are closed tightly on the plate the latter will be drawn firmly to its seat and held fixedly in position, the seat being formed by a vertical surface a^3 on the fixed jaw.

The relatively movable jaw a' is confined on the fixed jaw and forced toward the same to clamp the die-plate by means of a clamping-bolt G, extending upwardly through the jaw a' and threaded in the fixed jaw and provided with a head g for turning it. The adjacent surfaces of the two jaws are so formed, as at a^5, that the jaw a' is permitted sufficient scope of movement to forcibly engage the edge of the die-plate before the surfaces come in contact, and the relative movement of the jaw a' in a direction other than to and from the jaw a is prevented by a rib a^5 on the lower side of the fixed jaw, which enters loosely a socket a^6 on the upper side of the movable jaw.

From the foregoing construction it will be seen that the die-plate is held between the two jaws in such manner that by loosening the clamping-bolt the plate may be readily shifted endwise and again held fixedly in its new position by tightening up the clamping-bolt, so that if the die in operation becomes worn the next die or any one of them may be brought opposite the spoke by shifting the plate endwise.

In order that the supporting-surface a^4 of the head may be prevented from receiving the direct contact of the end of the spokes in the heading action, which in the repeated operations would wear a depression in the head, and thus interfere with the proper action of the mechanism, I apply to the rear face of the die-plate a hard wear-plate H, which forms the bottoms of the respective die-holes and which is interlocked with the die-plate by dowels h on the wear-plate entering sockets in the die-plate. This wear-plate when the die is advanced receives the thrust of the ends of the spokes, and when a new die-hole is brought into action a fresh portion of the wear-plate is also brought into action, the result being that there is little or no danger of the formation of a depression therein.

In Fig. 4 I have shown the die-plate constructed of two sections K K', the meeting edges of which are recessed at intervals, as at k k', producing a plurality of elliptical die-holes each formed conjointly of the opposing recesses. The purpose of this construction is to admit of the formation with little trouble of elliptical or flattened die-holes, which are necessary in acting on spokes elliptical in cross-section. The formation of holes of such shape in a solid plate would be attended with great labor and expense, while the recesses in the two sections of plate could be formed rapidly and at little expense and trouble by holding the plates one upon the other, as shown in Fig. 5, and milling or otherwise cutting out the complementary parts of the holes simultaneously in the flush edges of the sections, as indicated at k k'.

Having thus described my invention, what I claim is—

1. In a device of the type described the combination with a supporting-head, of a die-plate sustained thereby and formed with a plurality of female dies of similar shape and form and adapted individually for continuous use until worn, means for holding said die-plate fixedly in the head with a single continuously-acting die in operative relation to the object acted on, said holding means being formed to permit said plate to be moved with relation to the head to bring a fresh die in operative relation to the object to be acted on, when the other has become worn.

2. In a device of the type described, the combination of a supporting-head, a die-plate sustained thereby and formed with a plurality of female dies of similar shape and form, arranged side by side in said plate in the direction of the length of the same and adapted individually for continuous use until worn, means for holding said die-plate fixedly in the head with a single continuously-acting die in operative relation to the object acted on, said holding means being formed to permit said plate to be set endwise in the head to bring a fresh die in operative relation to the object to be acted on.

3. In combination with a supporting-head, a die-plate sustained thereby and provided with a plurality of die-holes extending therethrough, a wearing-plate on the rear face of the die-plate, and means for holding said plates in the head, said holding means being adapted to permit the plates to be adjusted relatively to the head to bring different die-holes into action.

4. In a device of the type described, the combination with a supporting-head, of a die-plate in the form of two separable removable members mounted edge to edge in said head and formed in their contiguous edges with opposing recesses constituting conjointly a plurality of die-holes, and means for holding said plates in the head, said holding means being formed to permit said plates to be moved together bodily in the head to bring different die-holes into use.

In testimony whereof I hereunto set my hand, this 2d day of May, 1904, in the presence of two attesting witnesses.

EMIL EINFELDT.

Witnesses:
M. LOUISE DODGE,
A. NEILSON.