No. 859,214. PATENTED JULY 9, 1907.

# R. GRIESER.

## DIE CARRIER.

APPLICATION FILED JULY 14, 1906

Fig. 1.

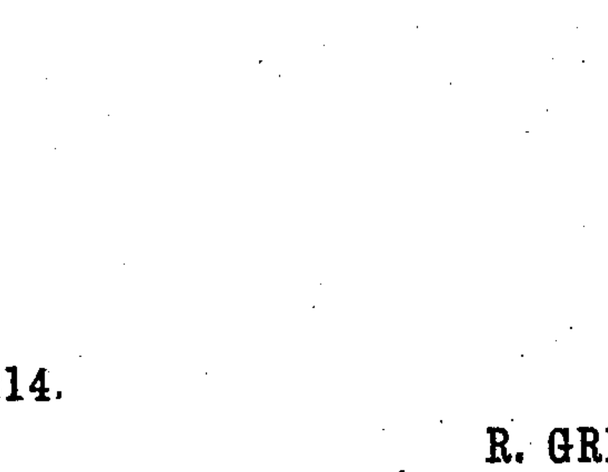


Fig. 2.

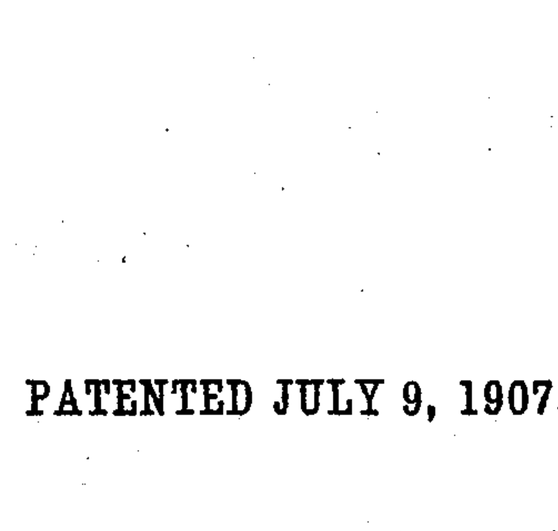


Fig. 3.

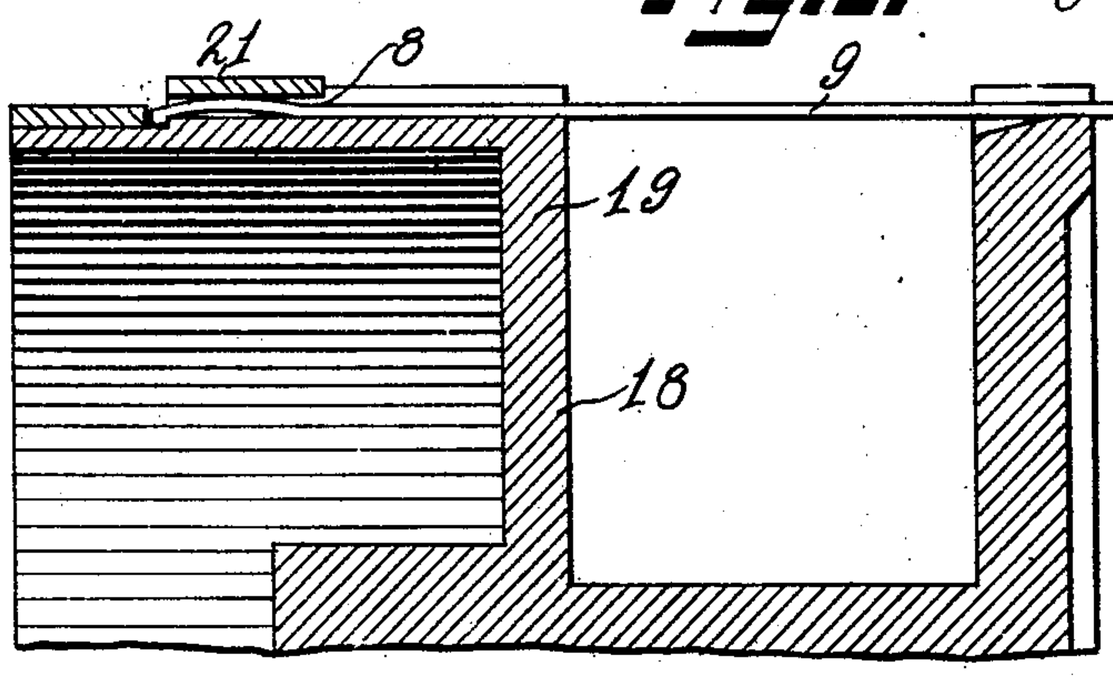


Fig. 6.

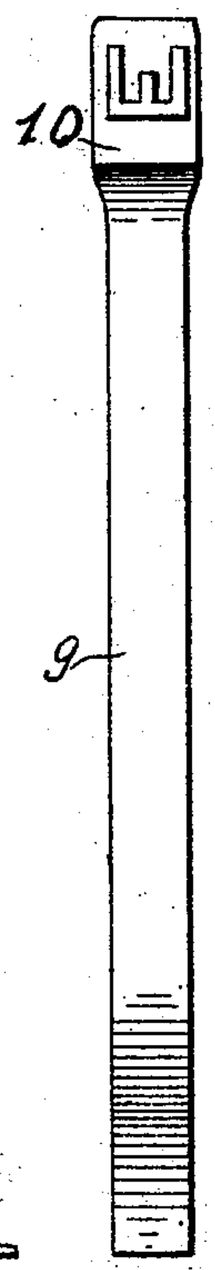


Fig. 4.

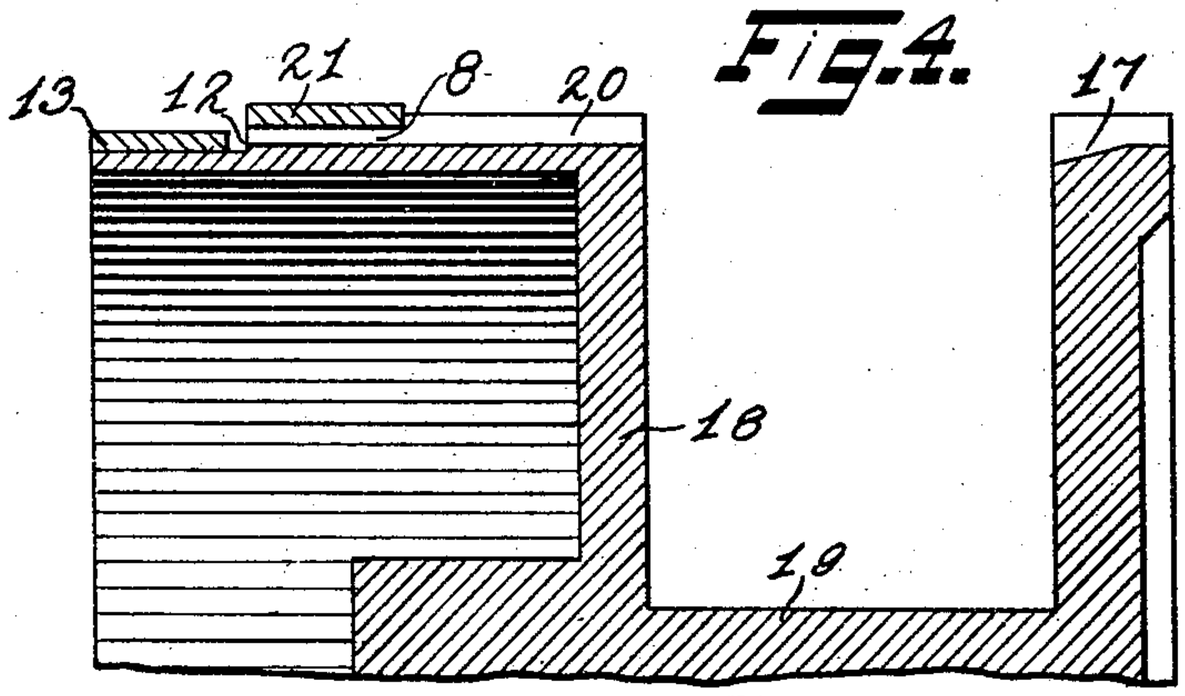


Fig. 5.


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# UNITED STATES PATENT OFFICE.

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## DIE-CARRIER.

No. 859,214. Specification of Letters Patent. Patented July 9, 1907.

Application filed July 14, 1906. Serial No. 326,205.

*To all whom it may concern:*

Be it known that I, RICHARD GRIESER, a citizen of the United States, residing in New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Die-Carriers, of which the following is a specification.

This invention relates to the means of removably retaining a set of dies in a die-holder.

The invention has special reference to the character of dies used in machines for producing printing surfaces, also known as reliefographs. In such construction, a number of dies are arranged in a cylindrical shape and upon the member being rotated to bring a desired one of the die ends adjacent a printing surface, such die is deflected radially to engage such surface. In a United States Patent No. 582,178 granted to W. E. Crane, such a construction is shown, in which the several die members are integrally connected with the holder. By this means, it was practically impossible to remove one die and substitute another, and it was also necessary to engrave each die as a part of the holder.

The object of the present invention is to provide a series of dies to be removably attached to such a holder.

A further object of the invention is to provide in such device, an organization of die and holder whereby the die could be securely attached to the holder by merely inserting the die into a socket portion of the holder and which would be securely retained therein by resilient means with sufficient rigidity to prevent its dislocation during the operation of bending each die when brought to the printing surface. At the same time each die could be quickly removed for repair or substitution by merely exerting a moderate amount of tension to draw the die from the socket. By such construction no operation of parts is necessary to mount the die in the holder or remove it therefrom, the mere act of forcing the die into the socket serving to removably retain the die in such position.

In the accompanying drawing representing one embodiment of my invention, Figure 1 is a perspective view of the device arranged adjacent a printing surface. Fig. 2 is a longitudinal section through the same. Fig. 3 is a view similar to Fig. 2 enlarged showing a portion only of the holder with the die inserted. Fig. 4 is a view similar to Fig. 3, with the die removed. Fig. 5 is a side elevation of the die member separate and Fig. 6 is a plan view of the same.

The die holder denoted generally by H is provided with a cylindrically arranged series of sockets denoted generally by 8 into which sockets is inserted one end of the die member 9. This die member is preferably of resilient material and at the end 10 is provided with the printing character, illustrated as in relief but which evidently could also be intaglio. The shank of the die is shown as substantially rectangular in section, and the cross section of the sockets 8 is similar, but of slightly greater width. The end portion 11 of the die is bent or curved as indicated in Fig. 5 whereby on insertion it will tightly engage the opposite walls tending to somewhat flatten out such portion. At the inner portion of the socket 8 is provided a shoulder portion 12, and a stop member 13 is also provided to limit the insertion of the die into the socket. The die is also provided with a ledge or projection 14 on the concave or inner side of its bent portion. Upon inserting the die into the socket, the ledge 14 will pass beyond the wall of the socket and engage the shoulder 12, the tendency of the curved portion on straightening out being to force this ledge to engage the shoulder portion and retain it in such position to prevent removal of the die. The stop portion 13 will prevent further insertion of the die and together with the ledge 12 will lock the die against endwise movement except upon the application of considerable force. To remove the die, a strong tension tending to pull it out of the socket will cause the ledge 14 to ride up from the shoulder 12 which it can do by the straightening out of the curved portion, and then the die member can be withdrawn.

In the particular construction illustrated, the holder comprises a hub portion 15 provided with a disk portion 16 at one end whose periphery is provided with a number of slots 17 registering or in alinement with the said sockets 8. A disk portion 18 connects a cylindrical portion 19 with the hub, which cylindrical portion is provided with a series of longitudinal slots 20 alining with the slots 17; both of which slots are of a width to snugly engage the die shank 9, and the bottom of which slots are also in alinement, whereby the die is held in the position indicated in Fig. 3. A ring or band 21 is passed around the cylindrical portion 9 and its inner face together with the three walls of the slots 20, constitute the said sockets 8; and these sockets as stated, are of a height slightly greater than the thickness of the shank 9 of the die. The band 21 is located at the intermediate part of the cylindrical portion 19, the slots 20 extending only from such portion to one end of the drum. At the opposite side of the cylinder 19, its diameter is slightly reduced forming the shoulder 12 that serves to engage the ledge 14 and prevent removal of the die unless considerable force is applied. The stop member 13 is formed of a band secured on the cylinder a short distance removed from the shoulder 12 to limit the insertion of the die shank.

The die members being resilient, pressure applied on the free end of the die radially outward will cause the die to bend outward, which it may be caused to do by means of a plunger 23 as indicated in Fig. 2. By this means upon rotation of the holder upon its axis, any de-

sired die may be brought to register with the plunger 23, and thereupon reciprocation of the plunger would cause the die to be lowered to engage a printing surface P indicated in Fig. 1. Upon release from the plunger the die at once returns to its normal position. It will be observed that the bending of the die member outwardly tends to force the ledge portion at its opposite end the more strongly into engagement with the shoulder portion, and cause a stronger retention of the die in its socket, instead of bending to loosen the die or withdraw it. Whereas an application of force endwise on the die member will cause it to disengage from the ledge and permit withdrawal.

Having thus described my invention, I claim:

1. A die member comprising a holder provided with a socket portion having a shoulder portion, and a resilient die member, the end portion of the die being bent from one side and provided with a ledge on the opposite side at the end whereby upon insertion of the die in the socket, the bent portion will cause the ledge to engage the shoulder portion of the socket and removably retain the die in the holder.

2. A die member comprising a holder provided with a series of socket portions cylindrically disposed and having a shoulder portion, a plurality of resilient dies located in said sockets, the end portion of each die being bent from one side and provided with a ledge on the opposite side at the end whereby upon insertion of the dies in the sockets, the bent portion will cause the ledge to engage the shoulder portion of the socket and removably retain the dies in position.

3. A die member comprising a cylindrical holder having a series of longitudinal channels on its periphery, a band arranged on the cylinder above the channels to form a socket portion for each channel, an annular groove adjacent the band to form a ledge at one end of each socket portion, a plurality of resilient die members of a width permitting insertion in the channels and socket portions, but of less thickness than the axial dimension of the socket, each die member being bent from one side near the end and provided with a ledge on the opposite side at such end, whereby upon insertion of such end of the die into the channel and socket portion, said bent portion will be flexed tending to straighten the die, and upon further movement of the die member, the ledge will be forced into engagement with the shoulder at said annular groove, removably retaining the die members in the holder.

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