



(12) **United States Patent**
Han

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(54) **MANUAL DIE SET FOR PRESSING
EXPLOSIVE POWDER INTO HARDWARE**

FOREIGN PATENT DOCUMENTS

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patent is extended or adjusted under 35
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(57) **ABSTRACT**

A manual die set includes a ram, the ram having an upper
portion and a lower portion; a ram head removably con-
nected to the upper portion of the ram; a die, the die defining
an opening therethrough for reciprocally receiving the ram,
the die including a top portion and a bottom portion, the
bottom portion including an upward facing step; a support
ring disposed in the die opening in the bottom portion of the
die, the support ring defining a bore therethrough; a base-
plate disposed in a bottom of the die opening and extending
into a bottom of the support ring bore; a die guide plate for
supporting the die and the baseplate; and a spring disposed
in the die opening, the lower portion of the ram being
inserted through a center of the spring, a lower end of the
spring bearing against the upward facing step in the bottom
portion of the die, an upper end of the spring bearing against
a bottom face of the upper portion of the ram; wherein the
spring is compressed when a pressing force moves the ram
downwardly such that when the pressing force is removed
from the ram, the spring forces the ram to move upwardly.

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(58) **Field of Search** 89/47, 24; 86/30,
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12 Claims, 2 Drawing Sheets

