

Multiple Iron Holder for Freeze Branding¹

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Highlight

Three hundred 450-lb Hereford steers were numerically freeze-branded on the right hip with a multiple iron holder. Time required to apply three-number brands was reduced from 150 seconds when irons were individually applied to 40 seconds when the multiple iron holder was used. Seventy-seven percent of the animals had legible brands eight months after branding. An additional 10% of the brands were marginal in legibility and the remaining 13% could not be readily identified.

Researchers conducting grazing studies with beef animals constantly encounter difficulties in positively identifying individual animals. Several identification methods, including hot branding, chemical branding, ear tagging, neck chaining, and tattooing are used, but each has disadvantages. Freeze branding offers another possibility; however, application time is usually longer than with other techniques. Holding each iron against the animal's skin for 30 to 40 seconds appears to be necessary in order to produce a legible brand on cattle (Farrell et al., 1966; Ely and Duitsman, 1968). This study attempted to reduce the application time by applying one, two, or three irons simultaneously with a multiple iron holder.

Materials and Methods

Three hundred Hereford steers weighing approximately 450 lb each were numerically freeze-branded on the right hip on November 2 and 3, 1967, using the multiple iron holder shown with parts and construction details in Fig. 1.

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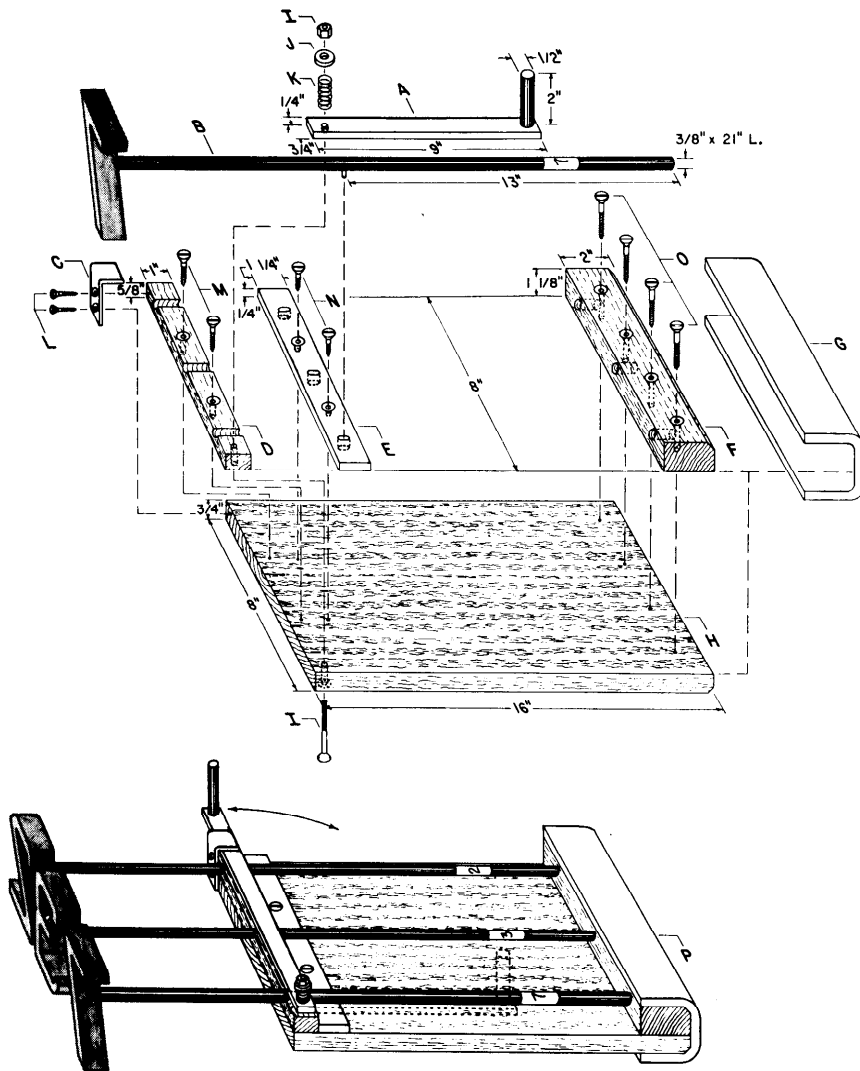


FIG. 1. Exploded and assembled views of freeze-branding multiple iron holder: A. Locking Lever—Flat iron stock; $\frac{7}{32}$ " dia. hole centered $\frac{1}{2}$ " from left end; rod handle brazed $\frac{3}{8}$ " from right end. B. Branding Iron—Galvanized pipe with $2" \times 4"$ bronze numeral; $\frac{3}{16}$ " dia. steel pin inset, extended $\frac{1}{4}"$ and brazed. C. Locking Lever Latch— $2\frac{1}{2}" \times \frac{5}{8}" \times \frac{3}{8}"$ flat iron stock, 90° bend, $\frac{3}{4}"$ from upper end; $\frac{5}{32}"$ dia. countersunk screw holes centered $\frac{3}{8}"$ and $\frac{5}{8}"$ from lower end. D. Front Alignment Bracket—Oak Stock, $\frac{1}{16}"$ semi-cylindrical grooves at mid-point and $1"$ from each end (use $1" \times 1"$ stock; drill $\frac{1}{16}"$ dia. horizontal holes $\frac{1}{16}"$ from bottom; cut stock down from top to $\frac{5}{8}"$ thickness); $\frac{5}{32}"$ dia. hole centered $\frac{1}{2}"$ from lower end; $\frac{7}{32}"$ dia. countersunk vertical screw holes $3"$ from each end. E. Vertical Alignment Bar—Flat iron stock; $\frac{7}{32}" \times \frac{3}{8}"$ slotted holes on longitudinal centerline at mid-point and $1"$ from each end; $\frac{5}{32}"$ dia. countersunk vertical screw holes $3"$ from each end. F. Rear Alignment Bracket—Oak stock; $\frac{5}{32}"$ dia. $\times \frac{5}{8}"$ deep horizontal holes on longitudinal centerline at mid-point and $1"$ from each end; $\frac{7}{32}"$ dia. countersunk vertical screw holes $1"$, $3"$, $5"$, and $7"$ from lower end; $\frac{3}{8}" \times 45^\circ$ bevel on upper right edge. G. Padding— $8" \times 6" \times \frac{3}{8}"$ to $\frac{1}{2}"$ foam rubber, held in place with contact cement. H. Base—Oak stock; $\frac{5}{32}"$ dia. hole (countersunk on lower side) $\frac{1}{2}"$ from left end and lower side; $\frac{3}{8}" \times 45^\circ$ bevel on lower right edge. Drill pilot holes for all screws. I. $1-\frac{3}{16}" \times 2\frac{1}{4}"$ flat head slotted stove bolt with nut. J. $1-\frac{3}{4}"$ flat washer. K. $1-\frac{1}{4}" \times \frac{3}{4}"$ I. D. heavy duty compression spring. L. $2-\text{No. } 7 \times 1"$ flat head slotted wood screws. M. $2-\text{No. } 12 \times 1\frac{1}{4}"$ flat head slotted wood screws. N. $2-\text{No. } 12 \times 1"$ flat head slotted wood screws. O. $4-\text{No. } 12 \times 1\frac{1}{4}"$ flat head slotted wood screws. P. Complete Assembly.

The following freeze branding procedure was employed:

1. Use a duplicate set of 2" × 4" bronze alloy numerals (0-9) to insure proper chilling at all times.
2. Stand irons in insulated container.
3. Pour methyl alcohol into the reservoir to a depth completely covering heads of irons.
4. Add sufficient crushed dry ice to raise alcohol level to 1 to 2 inches above iron heads.
5. Allow 30 minutes for irons to chill.
6. Place bath containing irons and dry ice solution near animal holding facility.
7. Check temperature of the solution with a Centigrade thermometer. When temperature reaches -72 to -75 C and bubbling stops, irons are ready to use.
8. Restrain the animal and clip the brand site as closely as possible with a Sunbeam Stewart Clipmaster, model 510A head, blade 84-AU, Sunbeam Corporation, Chicago, Ill. (Farrell et al. 1966).
9. Wipe clipped area with a sponge soaked in methyl alcohol to prevent irons from sticking to skin.
10. Insert numbered irons into multiple iron holder.
11. Apply irons to wetted area of skin with firm, steady pressure at least 40 seconds (Fig. 2).
12. Lift irons slowly from skin with a steady motion.
13. Return irons to methyl alcohol-dry ice bath and allow 2 to 3 minutes before using same irons again.
14. Add dry ice and alcohol to the mixture if bubbling becomes excessive or if mixture does not completely cover heads of irons.
15. Caution: Use insulated gloves when handling dry ice or individual branding irons and keep face away from alcohol-dry ice solution to avoid fumes.

Results and Discussion

A satisfactory result of applying a three-digit brand is number 181 shown in Fig. 3. Although properly applied numerals remain legible, they may become slightly distorted in time because hair on and near the brand site appears to grow faster than that covering



FIG. 2. Simultaneous application of three numerals on the hip of a steer during freeze branding with the multiple iron holder.

the remainder of the animal. An illegible brand number (75) is shown in Fig. 4. Difficulty in locating a flat area on the hip large enough for two or three irons appears to be the major problem in applying two or three numerals simultaneously. The area between the pin and hip bones on 450- to 500-lb calves is short. If any part of the irons is set on the bones when branding, the operator cannot apply even pressure on all irons and only part of the numerals may be legible at a later date. Branding larger animals (more than 600 lb) with three numerals simultaneously should result in greater success of positioning the irons to avoid hip and pin bones.

The time required to apply three individual numerals to each animal is approximately 150 seconds (40 seconds/ numeral holding time plus 30 seconds to select the irons as needed from the dry ice-alcohol bath). When the mul-



FIG. 3. Legible three-digit hip brand eight months following freeze branding with the multiple iron holder.



FIG. 4. Illegible two-digit hip brand eight months following freeze branding with the multiple iron holder.

multiple iron holder was used, application time was reduced to 40 seconds/animal because all irons could be fitted into the holder while the animal was being prepared for branding. Since branding is usually done in conjunction with vaccinating and dehorning, the time saved on numbering 300 steers with the multiple iron holder as opposed to individual numeral placement was approximately seven hours for a crew of five men. Two hundred thirty-one of the 300 brands (77%) were still clearly legible eight months after application.

Another 10% were marginal in legibility. That is, one of the two or three numerals was not completely clear. The remaining 13% could not be readily identified.

If smaller numerals ($1\frac{1}{2}'' \times 3''$ instead of $2'' \times 4''$) were employed for 450- to 500-lb steers, one could reduce the three-digit numeral spread from 8" to $6\frac{1}{2}''$ in the multiple iron holder, and perhaps obtain greater legibility. Another possibility would be to code three-digit numbers by substituting a dot in various positions for the first

digit and thereby minimize the surface area requirements for placement of three irons simultaneously.

LITERATURE CITED

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