
For Comments only

PGD 34 (18686) WC
IS 4506: XXXX

Draft Indian Standard
HAND TOOLS — FORKS, GENERAL PURPOSE — SPECIFICATION
(Second Revision)

ICS 25.140.30

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FOREWORD

This Indian Standard (*second revision*) will be adopted by the Bureau of Indian Standards, after the draft is finalized by the Hand Tools Sectional Committee and approval by the Production and General Engineering Division Council (PGDC).

This standard was first published in 1968 and subsequently revised in 1989. The second revision has been taken up to keep pace with the latest technological developments and international practices.

In this revision, the following changes have been made:

- a) Clause on references has been added;
- b) Material designations have been updated;
- c) BIS certification marking clause has been updated.

It lays down the requirements of forks used in road building, paving and coke loading, etc. Digging forks specified in this standard are not for use in plantations and estates and such forks have already been covered in IS 621: 1978 'Specification for forks for plantations and estates (*First revision*)'.

In the preparation of this standard, considerable assistance has been derived from BS 3388: 2004 'Forks, shovels and spades. Requirements and test methods' issued by the British Standards Institution.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (revised)'.

Draft Indian Standard

HAND TOOLS — FORKS, GENERAL PURPOSE — SPECIFICATION
(Second Revision)

1 SCOPE

1.1 This standard covers the dimensions and other requirements of forks for general purposes.

2 REFERENCES

2.1 The following standards contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below:

| <i>IS No.</i> | <i>Title</i> |
|----------------------|---|
| 620 : 1985 | Wooden tool handles, general requirements (<i>fourth revision</i>) |
| 621 : 1978 | Forks for plantations and estates (<i>first revision</i>) |
| 1501 (Part 1) : 2020 | Metallic Materials — Vickers Hardness Test Part 1 Test Method (<i>Fifth Revision</i>) |
| 1570 (Part 2) : 1979 | Schedules for wrought steels: Part 2 Carbon Steels (unalloyed steels) (<i>first revision</i>) |
| 2500 (Part 1) : 2000 | Sampling procedures for inspection by attributes: Part 1 sampling schemes indexed by acceptance quality limit (AQL) for lot - By - Lot inspection (<i>third revision</i>) |

3 NOMENCLATURE

Shall be as shown in Fig. 1.

4 TYPES

4.1 General purpose forks shall be of the following types:

- a) Digging Forks,
- b) Trenching Forks,
- c) Ballast Forks, and
- d) Coke Forks.

5 DIMENSIONS

5.1 The dimensions of digging forks shall be as given in Fig. 2.

5.2 The dimensions of trenching forks shall be as given in Fig. 3.

5.3 The dimensions of ballast forks shall be as given in Fig. 4.

5.4 The dimensions of coke forks shall be as given in Fig. 5.

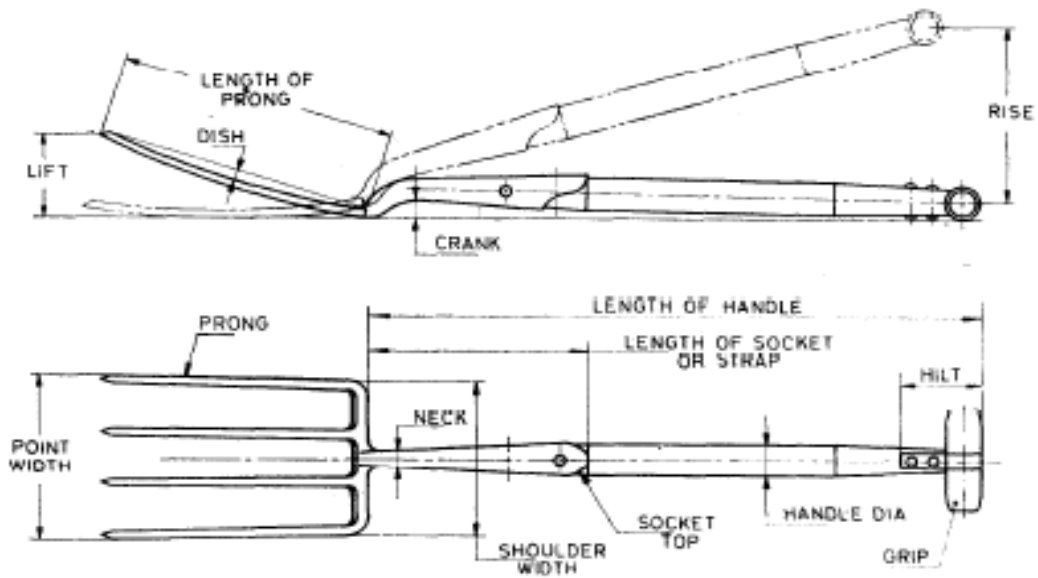
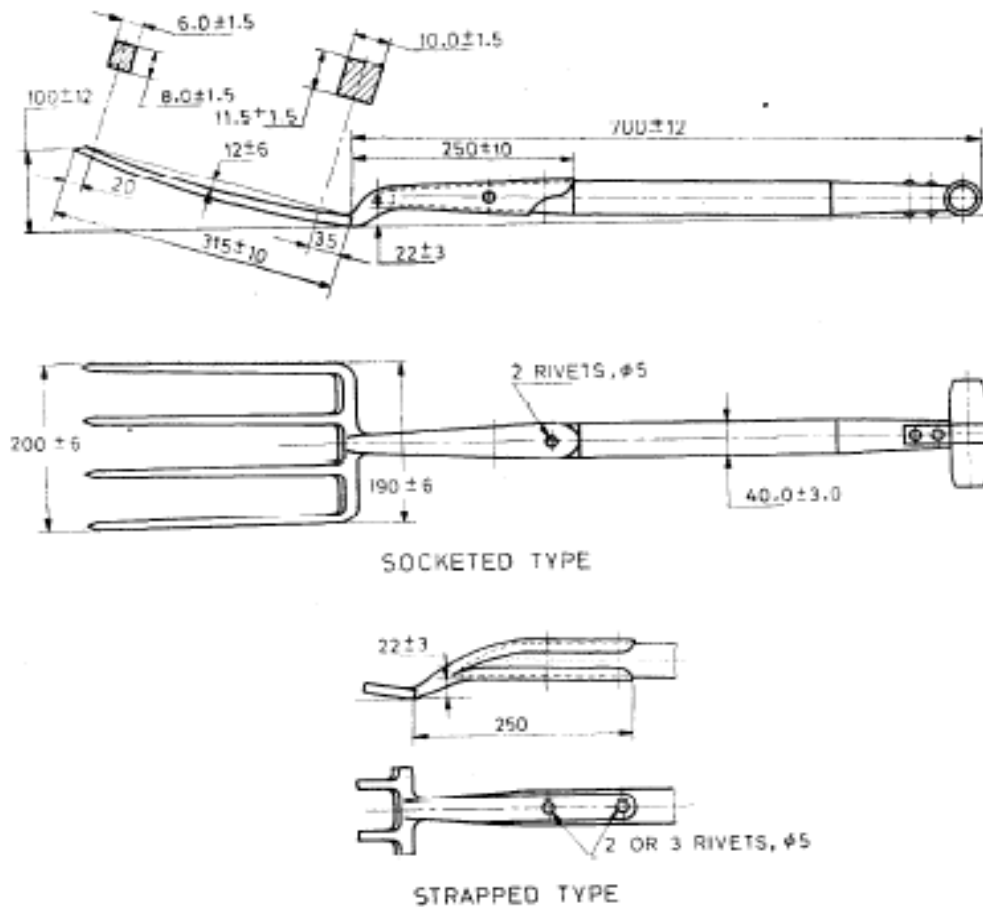
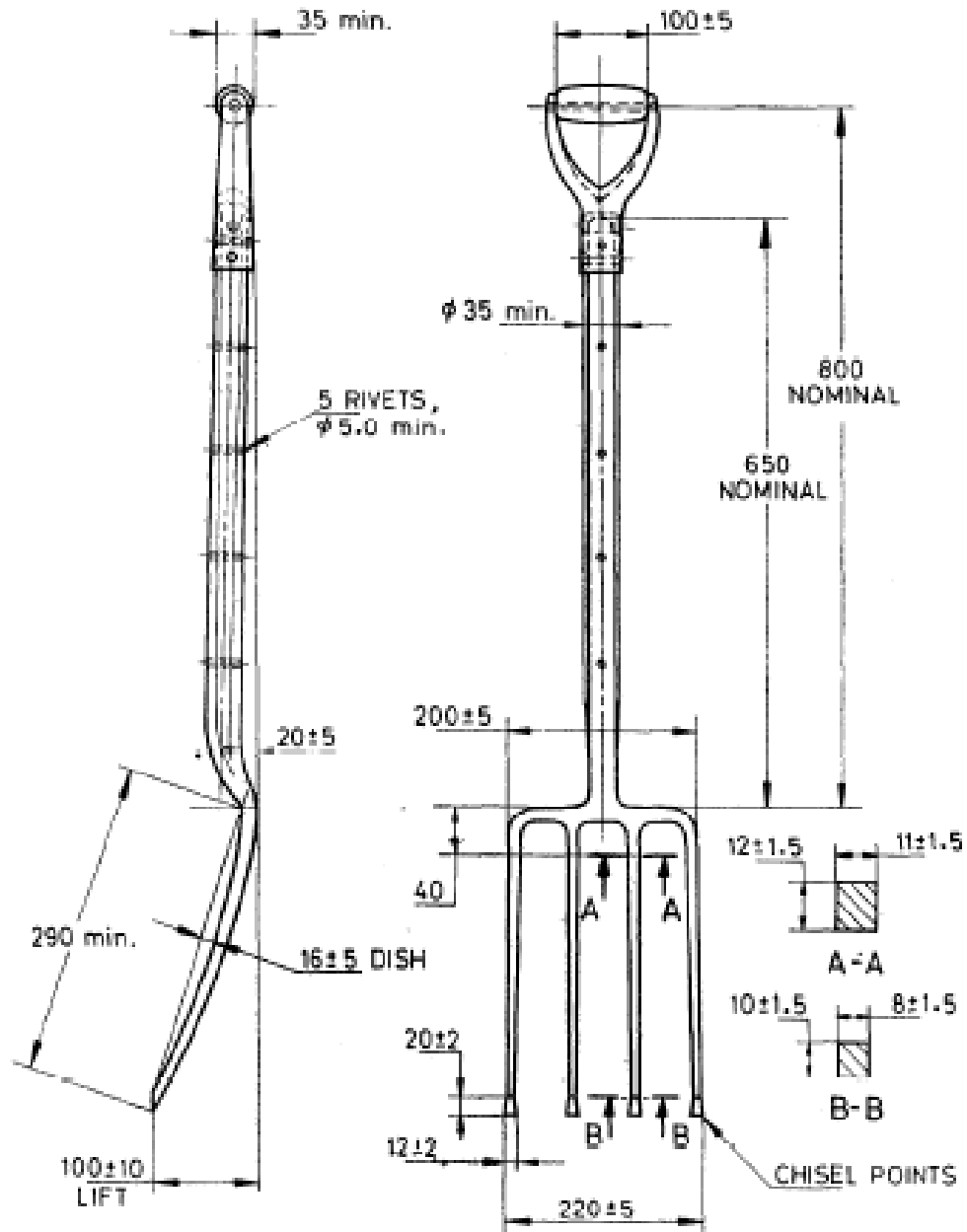


FIG. 1 NOMENCLATURE FOR FORKS



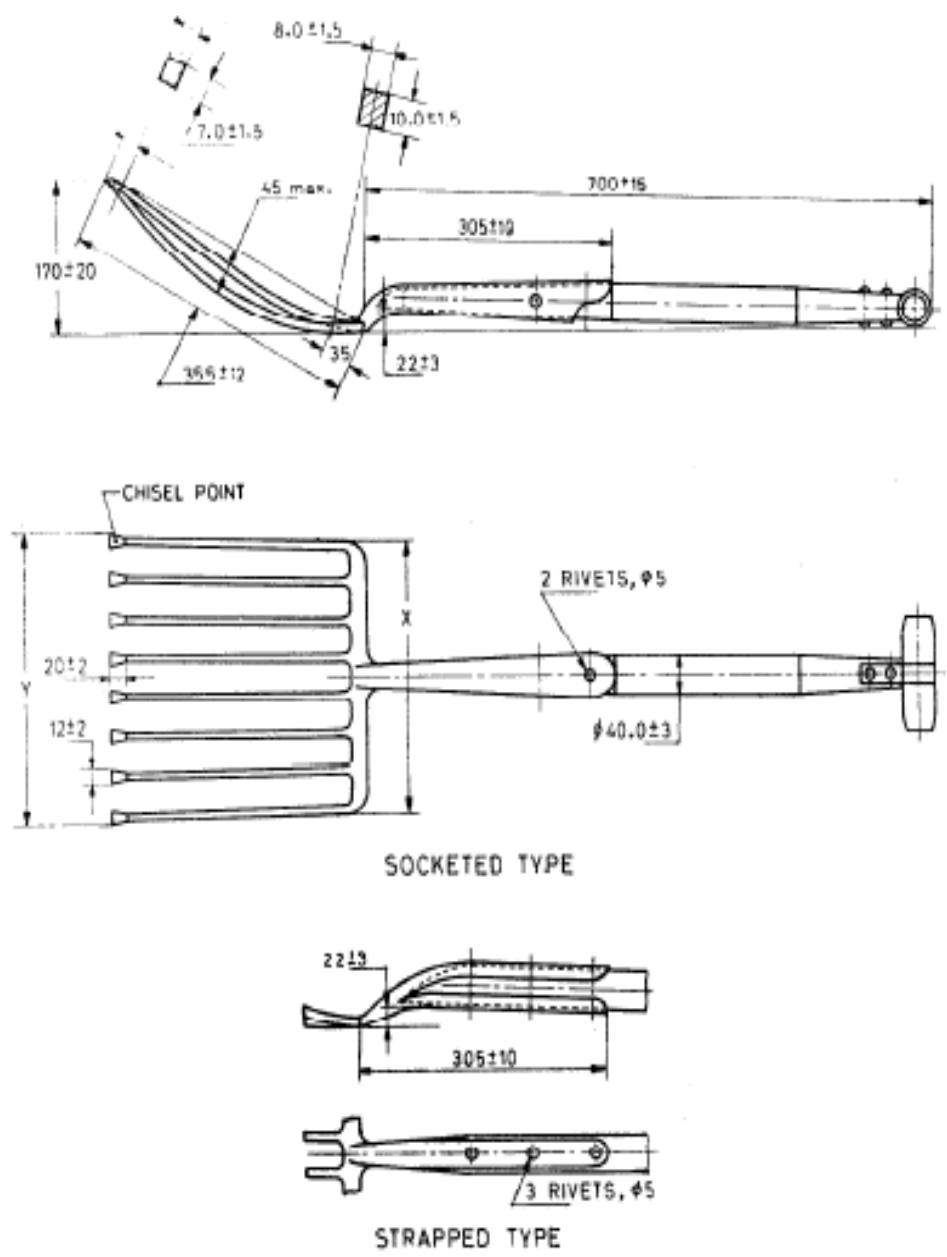
All dimensions in millimetres.

FIG. 2 DIMENSIONS FOR DIGGING FORKS



All dimensions in millimetres.

FIG. 3 DIMENSIONS FOR TRENCHING FORK



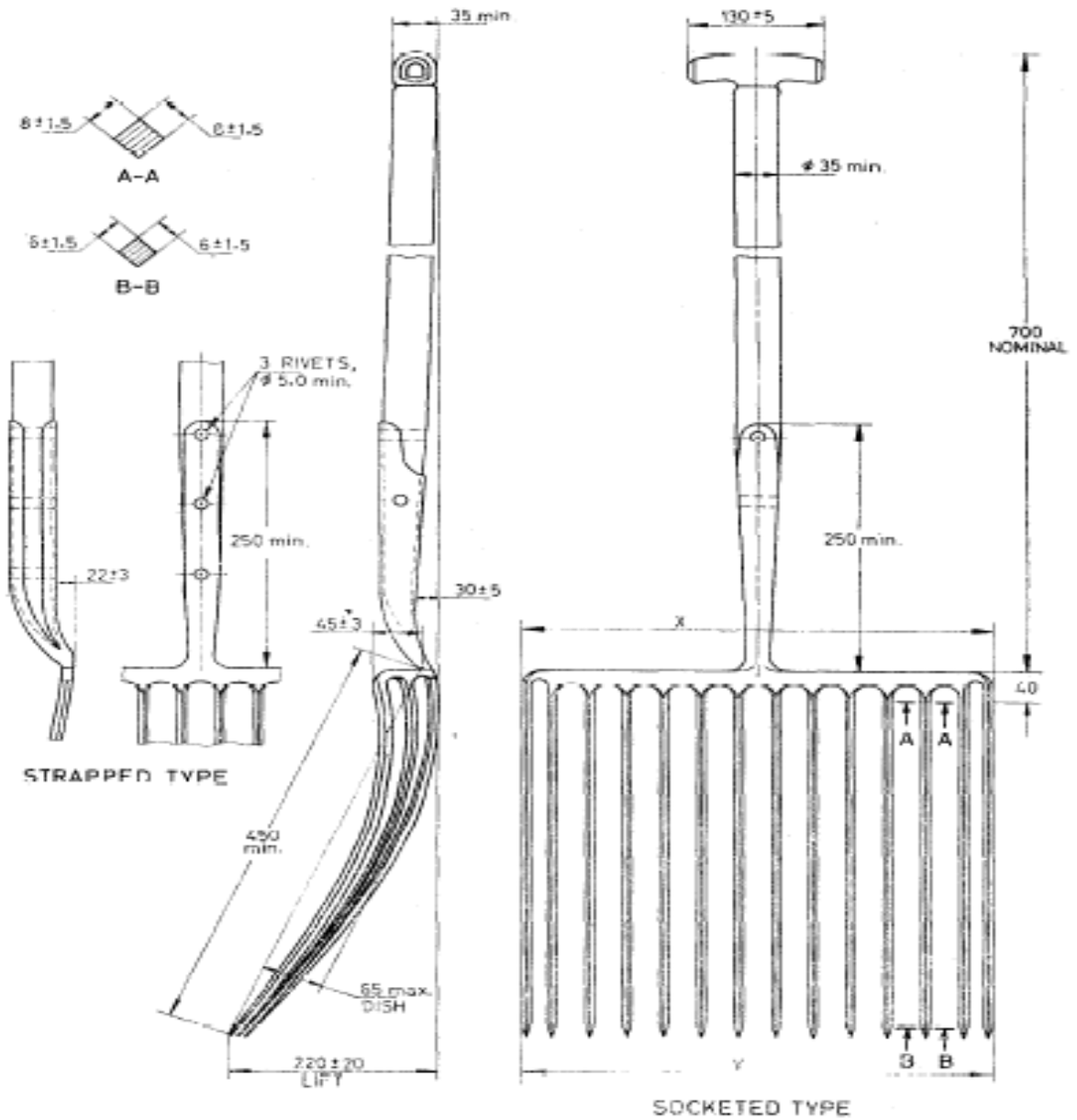
| No. of Prongs | Dimension at Shoulder $X \pm 10$ |
|---------------|-------------------------------------|
| 8 | 290 |
| 10 | 380 |

NOTES

- 1 The point width Y shall not be less than the shoulder width X.
- 2 If not specifically required by the purchaser the prongs may be of rectangular or diamond cross-section.

All dimensions in millimetres.

FIG. 4 DIMENSIONS FOR BALLAST FORK



| No. of Prongs | Dimension at Shoulder $X \pm 10$ |
|---------------|-------------------------------------|
| 8 | 290 |
| 10 | 380 |
| 12 | 425 |
| 14 | 480 |

NOTES

1 The point width Y shall not be less than the shoulder width X.

2 If not specifically required by the purchaser, the prong section may be rectangular or of diamond cross-section.

All dimensions in millimetres.

FIG. 5 DIMENSIONS FOR COKE FORK

6 MATERIAL

Forks shall be manufactured from suitable steels to meet the requirements laid down in **8** and **12**.

Example

Steel designation 40C8 or 55C8 conforming to IS 1570 (Part 2): 1979 with a maximum sulphur and phosphorus content of 0.06 percent each may be used.

7 HANDLES

7.1 The handles, if made of wood shall conform to class 4 of IS 620: 1975 or as agreed to between the manufacturer and the purchaser.

7.2 Handles of other materials if agreed upon between the manufacturer and purchaser may also be supplied provided the finished tool complies with the requirements laid down in **12**.

8 HARDNESS

The prongs of the forks shall be suitably hardened and tempered, up to the length 50 mm less from the shoulder. The hardness shall be 380 HV minimum when determined in accordance with IS 1501 (Part 1).

9 MANUFACTURE

9.1 The prongs of forks shall be either forged integrally or welded to the strap. The straps or sockets may be either forged integrally or welded with the prongs.

9.2 The sockets and straps shall be smooth and shall be positively and permanently secured to the handles.

9.3 The sockets and straps shall be close fitted and finished flush with the handle. Rivets shall also be finished flush.

9.4 Where handles of other material suitably joined to the socket are used in place of wooden handles, the socket may be shorter than specified provided the finished tool complies with the requirements laid down in **12**.

10 FINISH

The sockets or straps shall be polished bright or painted. The remaining areas of metal may be bright, self-colored or painted. Any exposed unpainted metal shall be given a suitable anticorrosive treatment.

11 SAMPLING

11.1 Unless otherwise agreed to between the purchaser and the supplier, the procedures given in IS 2500 (Part 1) : 2000 shall be followed for sampling inspection. The sampling plan, inspection level and acceptable quality level shall be as given in **11.2**, **11.3** and **11.4** respectively.

11.2 For dimensions and workmanship, single sampling plan with inspection level IV and AQL of 2.5 percent as given in Tables 1 and 2 of IS 2500 (Part 1) : 2000 shall be followed.

11.3 For bend and prong test, the single sampling plan with inspection level I and AQL 1.5 percent as given in Tables 1 and 2 of IS 2500 (Part 1) : 2000 shall be followed.

11.4 For hardness test one sample shall be tested from each lot of 100 pieces or parts thereof. No sample should fail.

12 TESTS

12.1 Bend Test

The forks shall be clamped and a load of 40 kgf shall be gradually applied by suspension from the grip. The load shall be maintained in the position for one minute and then removed. A load of 55 kgf in case of digging forks and 65 kgf in case of other types of forks shall then be applied gradually and maintained for two minutes. On removal of this load the forks shall show no sign of damage or loosening of any component part, nor shall there be any evidence of permanent set in excess of 25 mm when measured at the extreme tip of the hilt, at the centre line of the handle (see Fig. 6).

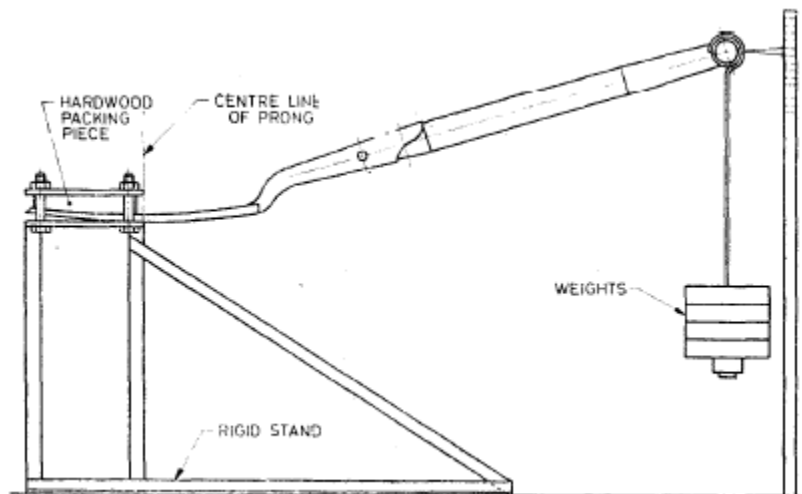


FIG. 6 BEND TEST OF FORKS

12.2 Prong Test

The Prongs of forks shall be tested by bringing tips of any two adjacent prongs together in case of digging forks and trenching forks, any four adjacent prongs in case of ballast forks and any five adjacent prongs in case of coke forks. The permanent set is noted. At the end of this test, the prongs shall show no sign of permanent set or damage.

13 PACKING

13.1 The forks shall be securely packed in suitable packing cases or crates of a size convenient for handling in transit, or bundled and secured suitably with wire or as may be specified by the purchaser. Each type of the fork shall be kept separate when packed and no package shall contain more than one variety of forks.

14 MARKING

14.1 The forks shall be clearly marked with the type, manufacturer's name or trade-mark/initials and year of manufacture.

14.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act, 2016* and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.