WHAT IS CLAIMED IS:

1. A shear ram assembly (11) for shearing a pipe (77), comprising:

first and second ram blocks (13, 51), each having a blade (17, 63), the blades (17,63) being positioned such that one slides over the other when the first and second ram blocks (13, 51) are moved forward to a closed position;

a pair of guide arms (25) protruding from the first ram block (13) toward the second ram block (51); and

each of the guide arms (25) having a tip (29) and a wedge surface (31) on an inboard side (27) of each of the guide arms (25), each of the wedge surfaces (31) extending from the tip (29) and converging in a direction toward the first ram block (13) for centering the pipe (77) when the first and second ram blocks (13, 51) are moved to the closed position.

2. The assembly according to claim 1, wherein a rearward edge of each of the wedge surfaces (31) is located substantially a same distance forward of a face (23) of the first ram block (13) as an upper edge (19) of an outboard end (24) of the blade (17) of the first ram block (13).

3. The assembly according to claim 1, wherein each of the wedge surfaces (31) is located in a vertical plane.

4. The assembly according to claim 1, further comprising:

a housing (73) having a bore (75) extending vertically therethrough for the passage of a pipe string (77), the first and second ram blocks (13, 59) being carried within the housing (73); and

wherein a distance between rearward ends of the wedge surfaces (31) is less than a diameter of the bore (75).

5. The assembly according to claim 4, wherein each of the blades (23, 63) has a length between outboard ends that is less than a diameter of the bore (75).

6. The assembly according to claim 4, wherein:

a distance between the wedge surfaces (31) measured at the tips (29) is substantially equal to a diameter of the bore (75).

7. The assembly according to claim 4, wherein:

upper edges (19) of the outboard ends (24) of the blade (17) extend from the first ram block (13) a selected blade protrusion distance; and

a distance between the wedge surfaces (31) measured at the blade protrusion distance from the first ram block (13) is less than the diameter of the bore (75).

8. The assembly according to claim 4, wherein:

each of the guide arms (25) has an inboard side portion (27) extending from the first ram block (13) to a junction with the wedge surface (31), each of the inboard side portions (27) being substantially parallel with a longitudinal axis (28) of the ram blocks (13, 51); and

a distance between inboard side portions (27) is substantially equal to a length of the blade (17) of the first ram block (13) and is less than a diameter of the bore (75).

9. The assembly according to claim 1, further comprising:

a pair of recesses (71) on the second ram block (51) adjacent opposite ends of the blade (63) of the second ram block (51) for receiving the guide arms (25) when the first and second ram blocks (13, 51) move to the closed position; wherein

each of the recesses (71) has an upper wall (72); and

the guide arms (25) are mounted to the first ram block (13) so as to avoid sliding contact with the upper walls (72) as the first and second ram blocks (13, 51) move to the closed position.

10. The assembly according to claim 9, wherein each of the recesses (71) has an open bottom and an open outboard side.

11. The assembly according to claim 1, wherein the blade (23) of the first ram block (13) slides over the blade (63) of the second ram block (51) when in the closed position.

12. The assembly according to claim 1, wherein:

the blade (23) of the first ram block (13) extends over the blade (63) of the second ram block (51) while the first and second ram blocks (13, 51) are in the closed position.

13. The assembly according to claim 1, wherein:

each of the guide arms (25) has an upper surface (33) located at an elevation on the first ram block (13) that is lower than a lower surface of the blade (23) on the first ram block (13).

The invention claimed is:

1. A pipe shear ram assembly, comprising:

a housing having a bore extending vertically therethrough for the passage of a pipe string and having a bore axis;

first and second ram blocks, having first and second blades, respectively, the blades being positioned such that one slides over the other when the first and second ram blocks are moved forward to a closed position;

a pair of guide arms protruding from the first ram block toward the second ram block, each of the guide arms being axially spaced from the first blade and located at a different elevation on the first ram block than the first blade; and

each of the guide arms having a tip and a wedge surface on an inboard side of each of the guide arms, each of the wedge surfaces extending from the tip toward the first ram block to a rearward end of each of the wedge surfaces, each of the wedge surfaces being devoid of additional aligning structure from the tip to the rearward end for contacting and guiding the pipe string toward the bore axis of the bore in the event the first and second ram blocks are moved to the closed position.

2. The assembly according to claim 1, wherein the rearward end of each of the wedge surfaces is located substantially a same distance forward of a face of the first ram block as an upper edge of an outboard end of the first blade.

3. The assembly according to claim 1, wherein a distance between the rearward ends of the wedge surfaces is substantially equal to a length of the first blade.

4. The assembly according to claim 1, wherein a distance between rearward ends of the wedge surfaces is less than a diameter of the bore.

5. The assembly according to claim 1, wherein each of the wedge surfaces has an upper surface located at an elevation below a lower edge of the first blade.

6. The assembly according to claim 1, wherein each of the blades has a length between outboard ends that is less than a diameter of the bore.

7. The assembly according to claim 1, further comprising:

a pair of recesses on the second ram block adjacent opposite ends of the blade of the second ram block for receiving the guide arms when the first and second ram blocks move to the closed position; wherein

each of the recesses has a flat upper wall; and

the guide arms are mounted to the first ram block so as to avoid sliding contact with the upper walls as the first and second ram blocks move to the closed position.

8. The assembly according to claim 7, wherein each of the recesses has an open bottom and an open outboard side.

9. The assembly according to claim 8, wherein each of the recesses has a flat inner side wall that is in a plane perpendicular to the upper wall.

10. A pipe shear ram assembly, comprising:

a housing having a bore extending vertically therethrough for the passage of a pipe string;

first and second ram blocks having first and second blades, respectively, the first and second blades being positioned such that one slides over the other when the first

and second ram blocks are moved toward each other along a longitudinal axis of the first and second ram blocks to a closed position;

a pair of guide arms extending from the first ram block, the guide arms having tips protruding from the first ram block toward the second ram block a greater distance than the first blade;

each of the guide arms having an inboard wedge surface beginning at the tip and extending toward the first ram block to a rearward end of the wedge surface along a line that intersects the longitudinal axis, each of the wedge surfaces being devoid of additional aligning structure from the tip to the rearward end for contact with and guiding the pipe string toward a bore axis of the bore in the event the first and second ram blocks are moved to the closed position; and

each of the guide arms has an upper surface located at an elevation on the first ram that is lower than a lower surface of the first blade.

11. The assembly according to claim 10, wherein:

a distance between the wedge surfaces measured at the tips is substantially equal to a diameter of the bore.

12. The assembly according to claim 10, wherein;

a distance between the wedge surfaces measured at the rearward ends is substantially equal to a length of the first blade.

13. The assembly according to claim 10, wherein:

each of the guide arms has an inboard side portion extending from the first ram block to a junction with the wedge surface, each of the inboard side portions being substantially parallel with the longitudinal axis; and

a distance between inboard side portions is substantially equal to a length of the first blade and is less than a diameter of the bore.

14. The assembly according to claim 10, wherein;

the first blade extends over the second blade while the first and second ram blocks are in the closed position.

15. The assembly according to claim 10, further comprising:

a pair of recesses in the second ram block adjacent outboard ends of the second blade for receiving the guide arms when the first and second ram blocks move to the closed position; wherein

each of the recesses has a downward-facing flat upper wall; and

the guide arms are mounted to the first ram block so as to avoid sliding contact with the upper walls as the first and second ram blocks move to the closed position.

16. A pipe shear ram assembly, comprising:

a housing having a bore extending vertically therethrough for the passage of a pipe string;

first and second ram blocks having first and second blades, respectively, the first and second blades being positioned such that one slides over the other when the first and second ram blocks are moved toward each other along a longitudinal axis of the first and second ram blocks to a closed position;

a pair of guide arms, each having a base joined to the first ram block, an inboard side portion extending from a forward end of the inboard side portion at an angle relative to the longitudinal axis; wherein

a distance between the forward ends of the side portions is approximately a same distance as a length of the first blade measured between outboard ends and is less than a diameter of the bore: a distance between forward ends of the wedge surfaces is approximately a same distance as the diameter of the bore,

a pair of recesses in the second ram block adjacent outboard ends of the second blade for receiving the guide arms when the first and second ram blocks move to the closed position, each of the recesses being defined by at least one recess wall; and wherein

the guide arms are mounted to the first ram block so as to avoid sliding contact with the recess walls as the first and second ram blocks move to the closed position.

17. A pipe shear ram assembly, comprising:

a housing having a bore extending vertically therethrough for the passage of a pipe string;

first and second ram blocks having first and second blades, respectively, the first and second blades being positioned such that one slides over the other when the first and second ram blocks are moved toward each other along a longitudinal axis of the first and second ram blocks to a closed position;

a pair of guide arms, each having a base joined to the first ram block, an inboard side portion extending forward from the base parallel with the longitudinal axis, and an inboard wedge surface extending from a forward end of the inboard side portion at an angle relative to the longitudinal axis; wherein

a distance between the forward ends of the side portions is approximately a same distance as a length of the first blade measured between outboard ends and is less than a diameter of the bore;

a distance between forward ends of the wedge surfaces is approximately a same distance as the diameter of the bore; and

each of the guide arms has an upper surface located at an elevation on the first ram that is lower than a lower surface of the first blade.

18. The assembly according to claim 16, wherein:

the first blade extends over the second blade while the first and second ram blocks are in the closed position; and

the guide arms are located at a lower elevation on the first ram block than the first blade.

19. The assembly according to claim 17 wherein the wedge surface is flat and located in a vertical plane.