

to act upon the teeth of the gear having a reciprocatory movement in the operation of grinding the gear, substantially as set forth.

26th. In a machine for generating the teeth of bevel gears, an arbor to carry the gear, a grinding wheel, reciprocatory in the operation of grinding the gear and a spindle to carry the arbor, substantially as set forth.

27th. In a machine for generating the teeth of bevel gears, an arbor, a spindle to carry the arbor having a rocking movement in the operation of grinding the gear, and a bearing to carry the spindle, said spindle fulcrumed on a line passing through the cone centre of the gear, substantially as set forth.

28th. In a machine for generating the teeth of bevel gears, a quadrant, an arbor, a spindle to carry the arbor having a rocking movement in the operation of grinding the gear, and a bearing to carry the spindle adjustable on said quadrant, substantially as set forth.

29th. In a machine for generating the teeth of bevel gears, a rotatable grinding wheel reciprocatory in the operation of grinding a gear, an arbor, an index plate, and pawl and ratchet mechanism to actuate said plate, substantially as set forth.

30th. In a machine for generating the teeth of bevel gears, a rotatable grinding wheel reciprocatory in the operation of grinding a gear, an arbor, an index plate, a reciprocatory locking plunger to lock said plate, and means to actuate said plunger, substantially as set forth.

31st. In a machine for generating the teeth of bevel gears, a rotatable grinding wheel reciprocatory in the operation of grinding a gear, an index plate, an oscillatory locking device, and means to reciprocate the locking device, substantially as set forth.

32nd. In a machine for generating the teeth of bevel gears, a rotatable grinding wheel reciprocatory in the operation of grinding a gear, an arbor, an index plate, an oscillatory arm, and a locking device carried by said arm to lock said plate, substantially as set forth.

33rd. In a machine for generating the teeth of bevel gears, a rotatable grinding wheel reciprocatory in the operation of grinding a gear, an arbor, an index plate, an oscillatory locking plunger, and a reciprocatory slide to engage and actuate said plunger, substantially as set forth.

34th. In a machine for generating the teeth of bevel gears, a rotatable grinding wheel reciprocatory in the operation of grinding a gear, an arbor, an index plate, pawl and ratchet mechanism to actuate said plate, and a reciprocatory slide to carry said pawl, substantially as set forth.

35th. In a machine for generating the teeth of bevel gears, means to carry a gear, an index plate, a slide to actuate said plate, a shaft on a line passing through the cone centre of the gear, a shifting device upon said shaft, a cam, and levers connecting said cam and slide with said shifting device, substantially as set forth.

36th. In a machine for generating the teeth of bevel gears, a rotatable grinding wheel reciprocatory in the operation of grinding a gear, a device to carry a gear, and a toothed index plate having an adjustable connection with said device to give thereto a step by step movement, whereby the teeth of the index plate may be aligned with the teeth of the gear, substantially as set forth.

37th. In a machine for generating the teeth of bevel gears, a device to carry a gear, a former arm to actuate said device, and an intervening arm connecting the former arm with the gear carrying device, substantially as described.

38th. In a machine for generating the teeth of bevel gears, a spindle to carry the gear, and an interchangeable former-arm provided with an oscillatory former engaged upon said spindle, substantially as set forth.

39th. In a machine for generating the teeth of bevel gears, means to carry a bevel gear, means to rock said gear in the operation of the machine, and an oscillatory former to actuate the gear, substantially as set forth.

40th. In a machine for generating the teeth of bevel gears, means to carry a gear, means to rock said gear in the operation of the machine, a grinding wheel, and a former to govern the position of the gear whereby the action of the wheel will produce the correct curvature of the teeth of said gear, substantially as set forth.

41st. In a machine for generating the teeth of bevel gears, means to carry a bevel gear, a rotatable grinding wheel reciprocatory in the operation of grinding a gear, an oscillatory former to govern the action of the grinding wheel upon the gear, and a travelling device to actuate said former, substantially as set forth.

42nd. In a machine for generating the teeth of bevel gears, means to carry a bevel gear a grinding wheel, a former, an oscillatory lever to carry the grinding wheel, and a travelling device carried by said lever to actuate said former, substantially as set forth.

43rd. In a machine for generating the teeth of bevel gears, means to carry a gear, a grinding wheel, a former to govern the action of the grinding wheel upon the gear, and an oscillatory travelling device to actuate said former, substantially as set forth.

44th. In a machine for generating the teeth of bevel gears, means to carry a gear, a grinding wheel, a former to govern the operation of the grinding wheel upon the gear, an oscillatory travelling device to actuate said former, and means to limit the oscillation of said travelling device, substantially as set forth.

45th. In a machine for generating the teeth of bevel gears, means to carry a bevel gear, a former, and a device to travel on a line passing through the cone centre of the gear to actuate said former, substantially as described.

46th. In a machine for generating the teeth of bevel gears, means to carry a bevel gear, a former, an oscillator lever to carry a grinding wheel, an oscillatory arm carried by said lever, and a travelling device carried by said arm to actuate said former, substantially as described.

47th. In a machine for generating the teeth of bevel gears, means to carry a gear, a former, an oscillatory lever to carry a grinding wheel, an oscillatory arm carried by said lever, a travelling device carried by said arm to actuate said former, and means to limit the oscillation of said arm, substantially as set forth.

48th. In a machine for gen-

erating the teeth of bevel gears, a device to carry a gear, a non-revoluble former to actuate said device, and means to oscillate the former in the operation of grinding the gear, said former centering on a line passing through the cone centre of the gear, substantially as set forth.

49th. In a machine for generating the teeth of bevel gears, the combination of a device to carry a gear, a non-revoluble former, and means to hold the former when in normal position on a line passing through the cone centre of the gear, substantially as set forth.

50th. In a machine for generating the teeth of bevel gears, the combination of a device to carry a gear, a non-revoluble former oscillatory in the operation of grinding the gear, a travelling device to actuate said former, and means to hold the former in the operation of the machine in contact with said travelling device, substantially as set forth.

51st. In a machine for generating the teeth of bevel gears, the combination of a device to carry a gear, a grinding wheel having a vertically reciprocatory movement, a former, a travelling device to actuate the former, and vertically with the grinding wheel, and means to hold the former in contact with the travelling device and to restore the former on a line passing through the cone centre of the gear, when the traveller is raised out of contact therewith, substantially as set forth.

52nd. In a machine for generating the teeth of bevel gears, the combination of a device to carry a gear, a former to actuate the gear, a travelling device to actuate the former, a guide, slides engaged with said guide, sheaves carried by said slides, a connecting rod connected with the former to actuate said slides, a cord engaged with one of said slides and passing over said sheaves, a tension device connected with the opposite end of said cord, and a stop between the adjacent ends of said slides, substantially as set forth.

53rd. In a machine for generating the teeth of bevel gears, a grinding wheel, a device to carry the grinding wheel, a guide carrying said device, a reciprocatory cross head carrying said guide, and means to limit the movement of the cross head, substantially as set forth.

54th. In a machine for generating the teeth of bevel gears, means to carry a gear, a laterally adjustable grinding wheel, a device to carry the grinding wheel, a guide carrying said device, a reciprocatory cross head, means to limit the movement of the cross head to secure the lateral adjustment of the grinding wheel to bring the cutting edge of the grinding wheel upon a line passing through the cone centre of the gear, substantially as set forth.

55th. In a machine for generating the teeth of bevel gears, a grinding wheel, a device to carry the grinding wheel having a reciprocatory movement in the operation of grinding the gear, a guide carrying said device, a reciprocatory cross head, screws to limit the movement of said head, and means to lock said screws, substantially as set forth.

56th. In a machine for generating the teeth of bevel gears, a grinding wheel having a reciprocatory movement in the operation of grinding the gear, and means to laterally adjust said wheel to bring its cutting edge upon a line passing through the cone centre of the gear, substantially as set forth.

57th. In a machine for generating the teeth of bevel gears, a grinding wheel having a reciprocatory movement in the operation of grinding the gear, a housing to carry said wheel, a guide to carry said housing, a cross head to carry said slide, a slide to carry said cross head, and means to limit the movement of said cross head upon said slide, substantially as set forth.

58th. In a machine for generating the teeth of bevel gears, a grinding wheel having a reciprocatory movement in the operation of grinding the gear, a housing to carry said wheel, a guide to carry said housing, a cross head to carry said guide, a slide to carry said cross head, and means to engage said guide upon said cross head, substantially as set forth.

59th. In a machine for generating the teeth of bevel gears, a grinding wheel having a reciprocatory movement in the operation of grinding the gear, a housing to carry said wheel, a guide to carry said housing, a cross head to carry said guide formed with an arc-shaped slot, a slide to carry said cross head, and a bolt passing through said slot engaging said guide upon said cross head, whereby the guide may be tilted in the arc of a circle to tilt the grinding wheel, substantially as set forth.

60th. In a machine for generating the teeth of bevel gears, a grinding wheel having a reciprocatory movement in the operation of grinding the gear, a housing to carry said wheel, a guide to carry said housing, a cross head to carry said guide formed with an arc-shaped slot, a slide to carry said cross head, and a bolt passing through said slot engaging said guide upon said cross head, whereby the guide may be tilted in the arc of a circle to tilt the grinding wheel, substantially as set forth.

61st. In a machine for generating the teeth of bevel gears, a grinding wheel having a reciprocatory movement in the operation of grinding the gear, a housing to carry said wheel, a guide to carry said housing, a cross head to carry said guide formed with an arc-shaped slot, and a slide to carry said cross head, said guide formed with tongues projecting into the arc-shaped slot, substantially as set forth.

62nd. In a machine for generating the teeth of bevel gears, means to carry a gear, a grinding wheel reciprocatory on a cone line of the gear in the operation of grinding the gear, and means to give a vertical adjustment to the grinding wheel, whereby as it reciprocates it will reciprocate on a line passing through the cone centre of the gear, substantially as set forth.

63rd. In a machine for generating the teeth of bevel gears, means to carry a bevel gear, a grinding wheel having a series of reciprocatory movements on a cone line of the gear in the operation of grinding the gear, and means to adjust the grinding wheel whereby its cutting edge will be upon lines passing through the cone centre of the gear both vertically and horizontally, substantially as set forth.

64th. In a machine for generating the teeth of bevel gears, means to carry a bevel gear, a grinding wheel, means to adjust the grinding wheel whereby its cutting edge will