

No. 637,592.

Patented Nov. 21, 1899.

E. HETT.

MECHANISM FOR MAKING PRINTING SURFACES.

(Application filed Jan. 5, 1899.)

(No Model.)

3 Sheets—Sheet 1.

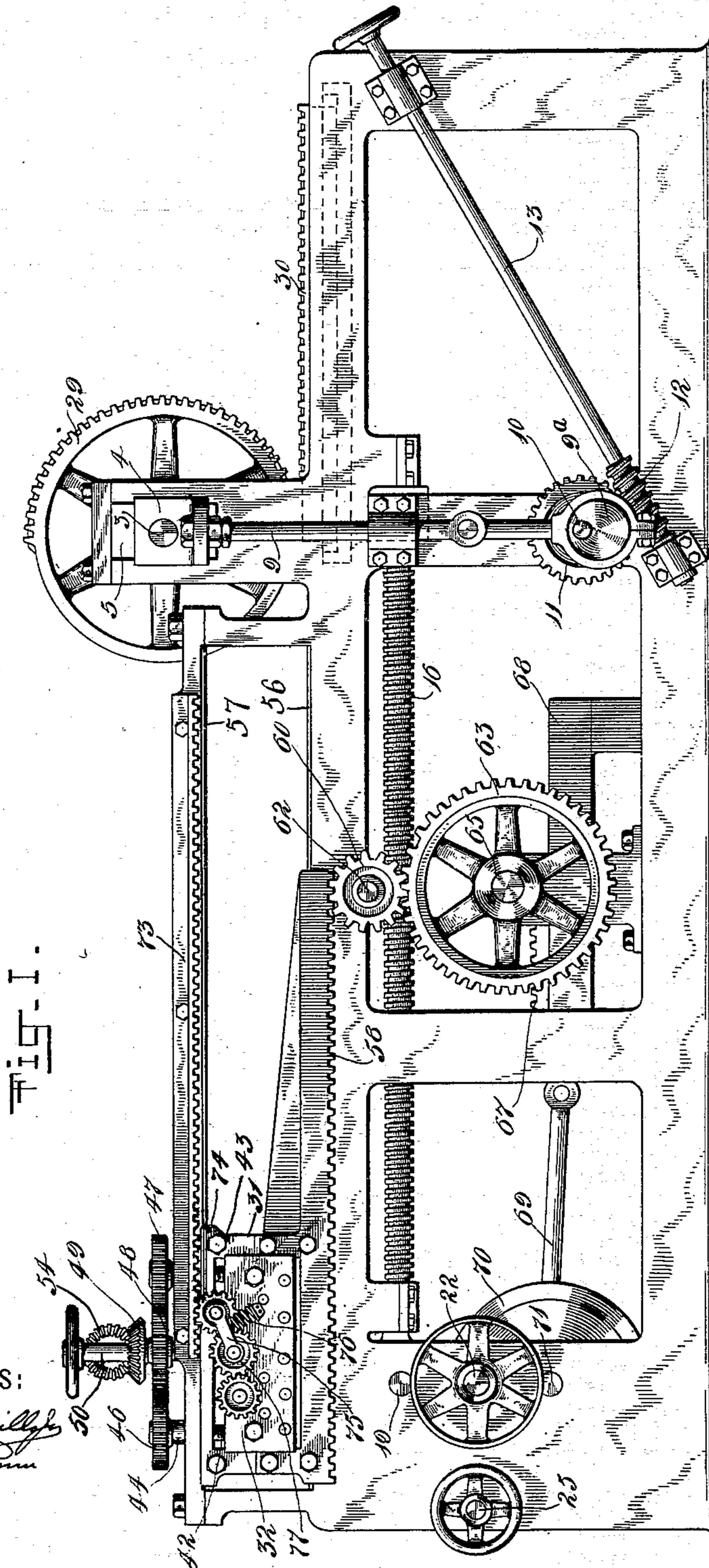


Fig. 1.

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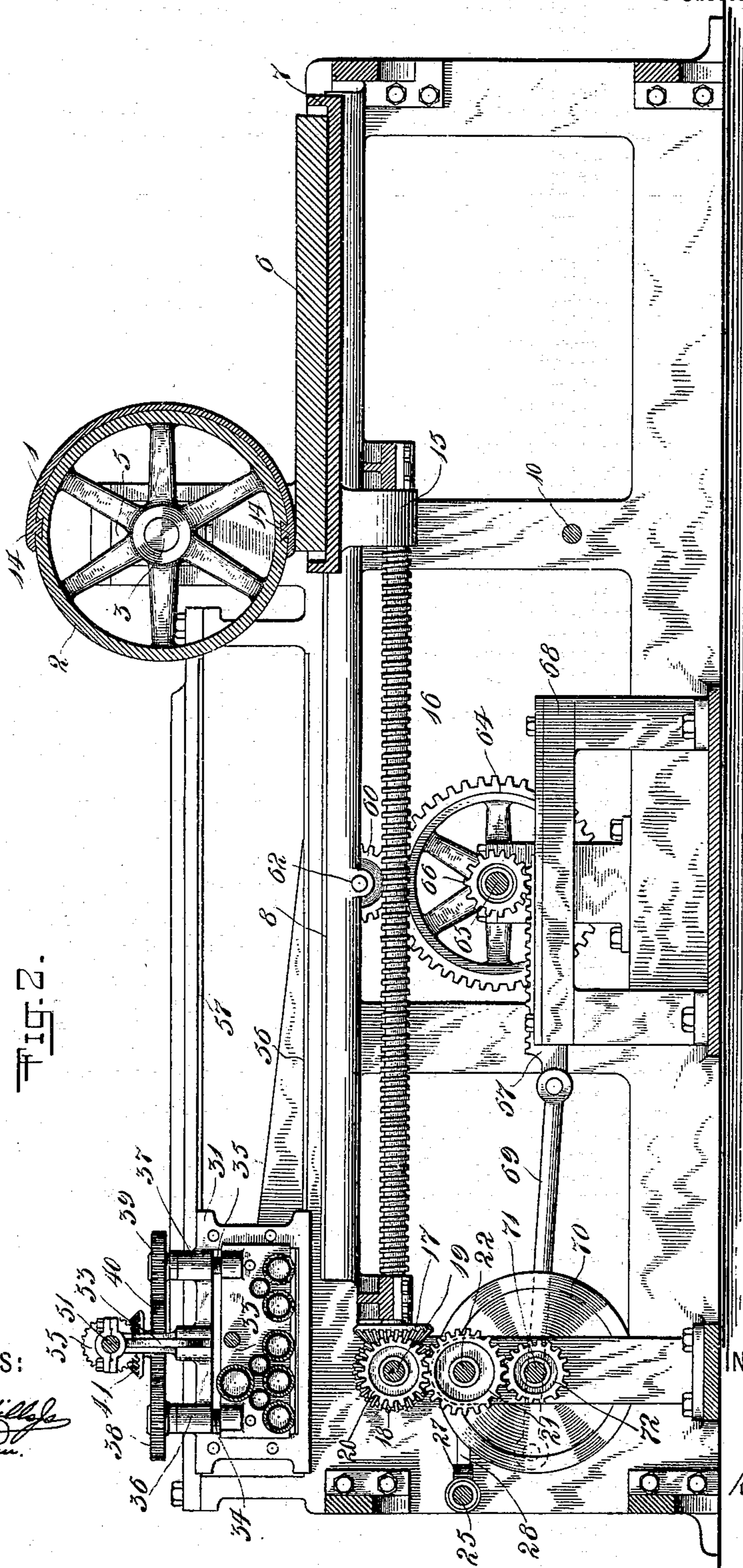
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3 Sheets—Sheet 2.



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3 Sheets—Sheet 3.

Fig. 3.

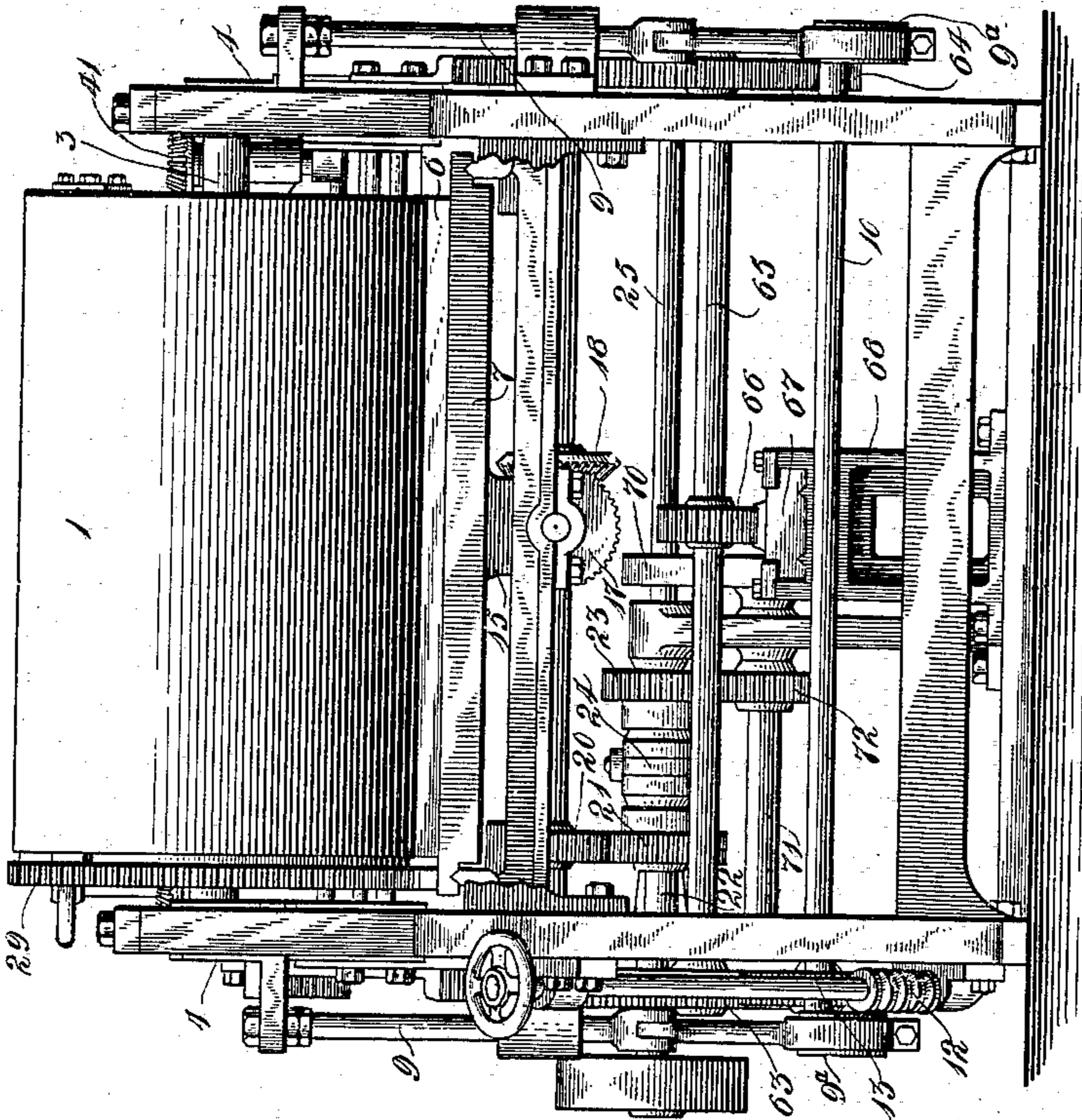
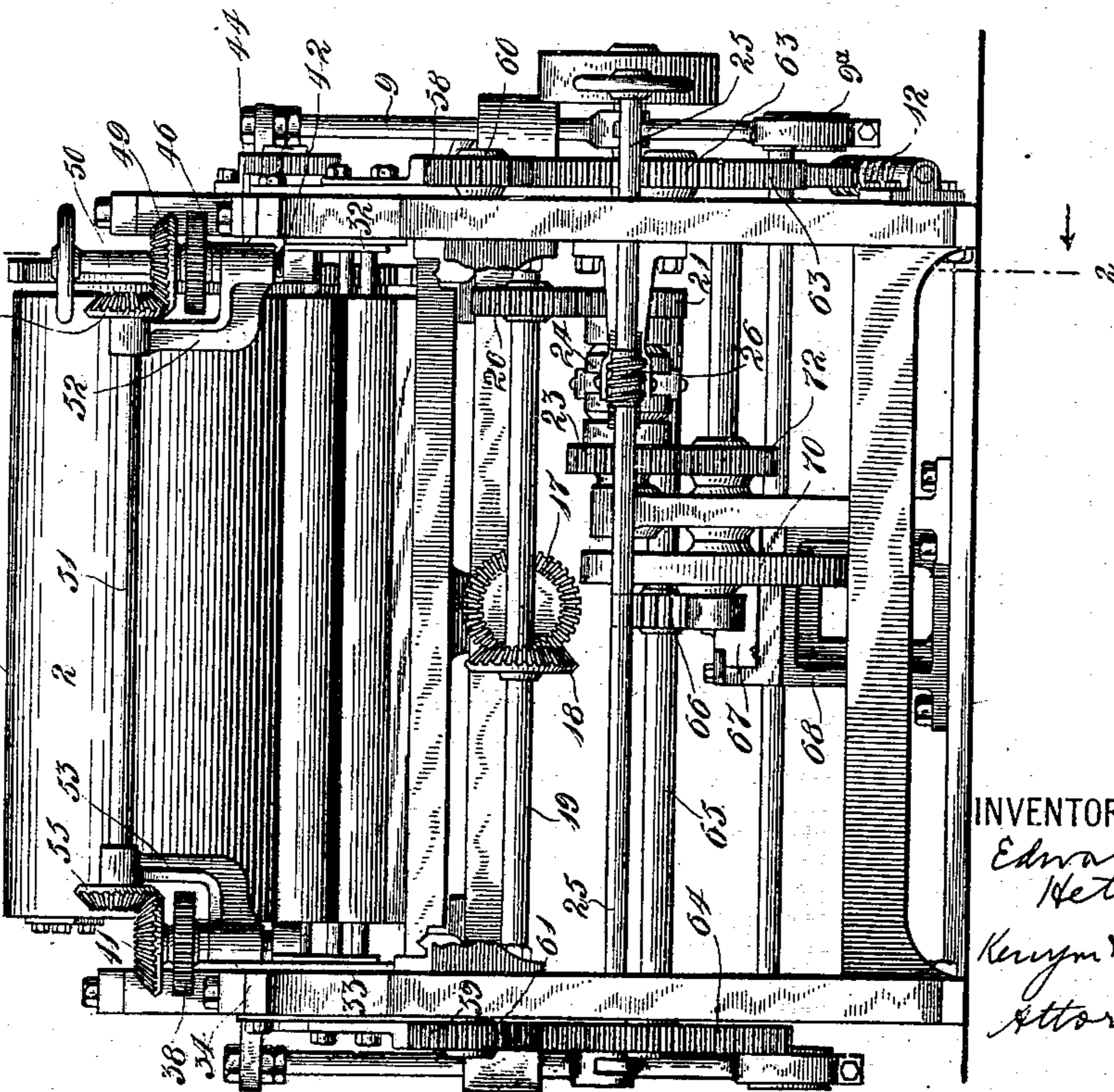


Fig. 4.

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UNITED STATES PATENT OFFICE.

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MECHANISM FOR MAKING PRINTING-SURFACES.

SPECIFICATION forming part of Letters Patent No. 637,592, dated November 21, 1899.

Application filed January 5, 1899. Serial No. 701,198. (No model.)

To all whom it may concern:

Be it known that I, EDWARD HETT, a citizen of the United States, residing at New York, (New Dorp,) in the county of Richmond, State of New York, have invented certain new and useful Improvements in Mechanism for Making Printing-Surfaces, of which the following is a specification.

This invention relates to a machine for making printing-surfaces; and the main object of the invention is to provide a machine whereby a design may be turned over, transferred, or otherwise imparted from a setting-up plate, transfer-plate, or transfer-base upon or to a printing-surface adapted to be thereafter developed into a printing-surface.

The invention consists, mainly, in a curved or rounded rotating transfer-base, transfer-plate, or setting-up plate and a flat printing-surface adapted to reciprocate in contact therewith, whereby the design of the transfer-base, transfer-plate, or setting-up plate may be imparted to the printing-surface.

It also consists of the various features and combination of features hereinafter set forth, and particularly pointed out in the claims.

In the accompanying drawings, forming part of this specification, and in which like numerals designate corresponding parts in the several views, Figure 1 is a side elevation of the machine. Fig. 2 is a sectional elevation on the lines 2 2 of Fig. 4. Fig. 3 is a front elevation of the machine. Fig. 4 is a rear elevation.

Referring now more particularly to the embodiment of the invention as illustrated in the drawings, the transfer-base may be of any suitable material adapted to impart in any suitable way the design carried thereby to the printing-surface. In the drawings the transfer-base is illustrated in the form of a setting-up plate, whereon ordinary transfers are stuck up for the purpose of turning over these transfers upon the printing-surface.

1 is the setting-up plate, removably mounted upon the curved or cylindrical support 2, fixed on the shaft 3, carried in boxes 4, mounted so as to slide in the recesses 5, formed in the frame of the machine. The printing-surface 6, which may be in the form of a flat stone, is a planographic surface and is unprepared and is supported by the bed 7, adapt-

ed to reciprocate in the ways 8 underneath and in contact with the setting-up plate. The setting-up plate and printing-surface are arranged to be brought together in firm contact and separated as desired. Any suitable means may be employed for this purpose. I preferably employ arms 9, connected with the boxes 4 and actuated by the eccentrics 9^a, fixed on the shaft 10, on which is fixed a gear 11, meshed with the worm 12 on the hand-shaft 13. By this means the setting-up plate is moved to and from the printing-surface. The setting-up plate may be removably secured to this supporting-cylinder 2 by any suitable means. I have herein shown ribs 14 formed on the setting-up plate and arranged to slide in corresponding grooves formed in the supporting-cylinder 2.

Fixed on the bed 7 is a nut 15, in which turns the screw 16 for the purpose of actuating the reciprocating bed 7. Fixed to the screw 16 is a gear 17, meshed with a gear 18, fixed on the shaft 19. On the shaft 19 is fixed a gear 20, meshing with the gear 21, loosely mounted on the driving-shaft 22. Loosely mounted on the shaft 22 is another gear 23. The clutch 24 is arranged to lock the gear 21 or the gear 23 on the shaft 22, as occasion requires. This clutch is operated by the hand-shaft 25, provided with a worm 26, which meshes with a gear 27 on the lever 28, connected with the clutch. It will thus be seen that by the operation of the driving-shaft the bed 7 may be driven back and forth in contact with the setting-up plate, the direction of the bed's movement being determined by the direction of the driving-shaft. In order that the setting-up plate and printing-surface may move together in positive contact, so as not to slip one on the other, I may provide the supporting-cylinder 2 with a gear 29, adapted to mesh with the rack 30 on the bed 7.

The printing-surface having received a planographic design or impression from the setting-up plate may be removed from the bed 7 and then developed. I have, however, provided inking and dampening devices whereby the printing-surface may be rolled up before it is removed from the machine. These inking and dampening devices are preferably geared with the driving mechanism of the machine, so as to be operated in conjunc-

tion with the printing-surface, as shown in the drawings. 31 is a carriage carrying vertically-adjustable boxes 32 and 33, in which are journaled the ink and water rollers. Connected with box 33, but so as to rotate therein, are the screws 34 and 35, passing loosely through the sleeves 36 and 37, respectively, on the carriage 31. Threaded on the upper ends of these screws are gears 38 and 39, respectively, which mesh with the intermediate gear 40, fixed to the gear 41 so as to move therewith and supported by the carriage 31. Connected with box 32, but so as to rotate therein, are the screws 42 and 43, passing loosely through the sleeves 44 and 45, (not shown,) respectively. Threaded on the upper ends of these screws are the gears 46 and 47, which mesh with intermediate gear 48, fixed with the gear 49 on the end shaft 50. The shaft 51, supported by brackets 52 and 53, carried by the carriage, has fixed thereon gears 54 and 55, which mesh with the gears 41 and 49. By this mechanism it will be seen that the movement of the hand-shaft 50 operates to move the boxes 32 and 33, carrying the inking and dampening rollers in the carriage 31, so as to apply these rollers to and separate them from the printing-surface. The carriage 31 is adapted to move back and forth in the ways 56 and 57 directly over the printing-surface and so as to traverse the same. The carriage is provided with racks 58 and 59, which mesh with the gears 60 and 61, carried on the studs 62. These gears are in mesh with the gears 63 and 64 on the shaft 65, on which is fixed the gear 66. The gear 66 meshes with the rack 67, adapted to reciprocate in the bed 68, and is connected by the link 69 with the wheel 70 on the shaft 71, on which is fixed the gear 72 in mesh with the gear 23 on the shaft 22. When the shaft 22 is driven and the wheel 23 is locked on the shaft by the clutch 24, the carriage 31, with inking and dampening rollers, is made to traverse the printing-surface when the latter has been brought underneath the ways 56 and 57. The movement of the bed 7 is reversed by reversing the pulley-shaft 22. 73 is a stationary rack carried by the main frame above one of the ways 57. The gear 74 meshes with this rack and with the gear 77. Gear 77 is carried by the boxes 32 of the carriage 31 and is in mesh with a gear on one of the inking-rollers. The gear 74 is supported by a pivoted arm 75, which is held up by a spring 76 on the box 32. By this arrangement the inking-rollers are positively driven and provision is made for the movement of the boxes 32 and 33 without unmeshing the gearing described therefor. While it is of course important that the rolling contact of the basic surface and printing-surface be positive—that is, without slipping—it is not essential that intermeshing gears be employed for this purpose. Other means may be employed to accomplish the result and also to drive the basic surface and printing-surface in unison.

Various changes in the mechanism and in the form and arrangement of parts may be made without departing from my invention. The transfer-base may be made to bear its designs in any suitable way, and these may be imparted to the printing-surface in any suitable way. The printing-surface, which may be of any suitable material, may be developed so as to be a planographic, relief, intaglio, or other printing-surface, and may be developed by light or deep etching or otherwise, and may be routed out.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a machine for making printing-surfaces, the combination of a curved transfer-base with a flat unprepared planographic-printing surface arranged to be brought together in firm contact whereby a transfer may be turned over from the transfer-base upon the printing-surface and a planographic impression thereby imparted to the printing-surface.

2. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base with a flat unprepared planographic-printing surface arranged to be brought together in firm contact whereby the design of the transfer-base may be imparted to the printing-surface and a planographic impression thereby imparted to the printing-surface.

3. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base with a flat unprepared planographic-printing surface arranged to be brought together in firm contact whereby a transfer may be turned over from the transfer-base upon the printing-surface and a planographic impression thereby imparted to the printing-surface, and means for applying pressure to said contact.

4. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base with a flat unprepared planographic-printing surface arranged to be brought together in firm contact whereby a transfer may be turned over from the transfer-base upon the printing-surface and a planographic impression thereby imparted to the printing-surface, and means for moving the transfer-base to and from the printing-surface and thereby applying pressure to said contact as desired.

5. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base with a flat unprepared planographic-printing surface arranged to be brought together in firm contact whereby the design of the transfer-base may be imparted to the printing-surface and a planographic impression thereby imparted to the printing-surface, and means for positively rotating said transfer-base when in contact with said printing-surface.

6. In a machine for making printing-surfaces, the combination of a curved rotating

transfer-base with a flat unprepared planographic - printing surface arranged to be brought together in firm contact whereby a transfer may be turned over from the transfer-base upon the printing-surface, and a planographic impression thereby imparted to the printing-surface, and means for reciprocating the printing-surface in rolling contact with the transfer-base.

7. In a machine for making printing-surfaces, the combination of a curved rotating setting-up plate with a flat unprepared planographic - printing surface arranged to be brought together in firm contact whereby the design of the transfer-base may be imparted to the printing-surface and a planographic impression thereby imparted to the printing-surface, means for reciprocating the printing-surface in contact with the transfer-base, and means for applying pressure to said contact.

8. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base with a flat unprepared planographic - printing surface arranged to be brought together in firm positive contact whereby a transfer may be turned over from the transfer-base upon the printing-surface and a planographic impression thereby imparted to the printing-surface, means for reciprocating the printing-surface in rolling contact with the transfer-base, and means for moving the transfer-base to and from the printing-surface and thereby applying pressure to said contact as desired.

9. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base with a flat unprepared planographic - printing surface arranged to be brought together in firm rolling contact whereby a transfer may be turned over from the transfer-base upon the printing-surface and a planographic impression thereby imparted to the printing-surface, means for reciprocating the printing-surface in contact with the transfer-base, and means for positively rotating said transfer-base when in contact with said printing-surface.

10. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base with a flat unprepared planographic - printing surface arranged to be brought together in firm rolling contact whereby the design of the transfer-base may be imparted to the printing-surface and a planographic impression thereby imparted to the printing-surface, means for moving the transfer-base to and from the printing-surface and thereby applying pressure to said contact as desired, and means for positively rotating said transfer-base when in contact with said printing-surface.

11. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base with a flat unprepared planographic - printing surface arranged to be brought together in firm rolling contact where-

by a transfer may be turned over from the transfer-base upon the printing-surface and a planographic impression thereby imparted to the printing-surface, and intermeshing gear-teeth for the transfer-base and printing-surface for positively rotating the setting-up plate when in contact with the printing-surface.

12. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base with a flat unprepared planographic - printing surface arranged to be brought together in firm contact whereby a transfer may be turned over from the transfer-base upon the printing-surface and a planographic impression thereby imparted to the printing-surface, intermeshing gear-teeth for the transfer-base and printing-surface for positively rotating the transfer-base when in contact with the printing-surface, and means for moving the transfer-base to and from the printing-surface and thereby applying pressure to said contact as desired.

13. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base with a flat unprepared planographic - printing surface arranged to be brought together in firm rolling contact whereby the design of the transfer-base may be imparted to the printing-surface and a planographic impression thereby imparted to the printing-surface, intermeshing gear-teeth for the transfer-base and printing-surface for positively rotating the transfer-base when in contact with the printing-surface, and means for reciprocating the printing-surface in contact with the transfer-base.

14. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base with a flat unprepared planographic - printing surface arranged to be brought together in firm rolling contact whereby a transfer may be turned over from the transfer-base upon the printing-surface and a planographic impression thereby imparted to the printing-surface, intermeshing gear-teeth for the transfer-base and printing-surface for positively rotating the transfer-base when in contact with the printing-surface, means for reciprocating the printing-surface in contact with the transfer-base, and means for applying pressure to said contact.

15. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base with a flat unprepared planographic - printing surface arranged to be brought together in firm rolling contact whereby the design of the transfer-base may be imparted to the printing-surface and a planographic impression thereby imparted to the printing-surface, intermeshing gear-teeth for the transfer-base and printing-surface for positively rotating the transfer-base when in contact with the printing-surface, means for reciprocating the printing-surface in contact with the transfer-base, and means for mov-

ing the transfer-base to and from the printing-surface and thereby applying pressure to said contact as desired.

16. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base with a flat unprepared planographic - printing surface arranged to be brought together in firm rolling contact whereby the design of the transfer-base may be imparted to the printing-surface and a planographic impression thereby imparted to the printing-surface, intermeshing gear-teeth for the transfer-base and printing-surface for positively rotating the transfer-base when in contact with the printing-surface, means for reciprocating the printing-surface in contact with the transfer-base, and means for positively rotating said transfer-base when in contact with said printing-surface.

17. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base carrying a design with a flat printing-surface arranged to be brought together in firm rolling contact the design being imparted from the transfer-base upon the printing-surface, and inking and water rollers for rolling up the printing-surface.

18. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base carrying a design with a flat printing-surface arranged to be brought together in firm rolling contact the design of the transfer-base being imparted to the printing-surface, means for moving the transfer-base to and from the printing-surface and thereby applying pressure to said contact as desired, and inking and water rollers for rolling up the printing-surface.

19. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base carrying a design with a flat printing-surface arranged to be brought together in firm rolling contact a transfer being turned over from the transfer-base upon the printing-surface, means for reciprocating the printing-surface in contact with the transfer-base, and inking and water rollers for rolling up the printing-surface.

20. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base carrying a design with a flat printing-surface arranged to be brought together in firm rolling contact the design of the transfer-base being imparted to the printing-surface, means for reciprocating the printing-surface in contact with the transfer-base, means for moving the transfer-base to and from the printing-surface and thereby applying pressure to said contact as desired, and inking and water rollers for rolling up the printing-surface.

21. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base carrying a design with a flat printing-surface arranged to be brought together in firm rolling contact a transfer being turned over from the transfer-base upon

the printing-surface, means for moving the transfer-base to and from the printing-surface and thereby applying pressure to said contact as desired, means for positively rotating said transfer-base when in contact with said printing-surface, and inking and water rollers for rolling up the printing-surface.

22. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base carrying a design with a flat printing-surface arranged to be brought together in firm rolling contact the design of the transfer-base being imparted to the printing-surface, and intermeshing gear-teeth for the transfer-base and printing-surface for positively rotating the transfer-base when in contact with the printing-surface, and inking and water rollers for rolling up the printing-surface.

23. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base carrying a design with a flat printing-surface arranged to be brought together in firm rolling contact a transfer being turned over from the transfer-base upon the printing-surface, intermeshing gear-teeth for the transfer-base and printing-surface for positively rotating the transfer-base when in contact with the printing-surface, means for moving the transfer-base to and from the printing-surface and thereby applying pressure to said contact as desired, and inking and water rollers for rolling up the printing-surface.

24. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base with a flat printing-surface arranged to be brought together in firm rolling contact whereby the design of the transfer-base may be imparted to the printing-surface, intermeshing gear-teeth for the transfer-base and printing-surface for positively rotating the transfer-base when in contact with the printing-surface, means for reciprocating the printing-surface in contact with the transfer-base, means for positively rotating said transfer-base when in contact with said printing-surface, and inking and water rollers for rolling up the printing-surface.

25. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base carrying a design, a flat printing-surface arranged to be brought into contact with said transfer-base, the design of the transfer-base being imparted to the printing-surface, a carriage provided with inking-rollers adapted to reciprocate over the printing-surface, and means for operating said carriage.

26. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base, a flat printing-surface arranged to be brought into contact with said transfer-base, the design of the transfer-base being imparted to the printing-surface, and a carriage provided with inking-rollers adjustable in the carriage, said carriage adapted to reciprocate

rocate over the printing-surface, and mechanism for operating the carriage.

27. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base, a flat printing-surface arranged to be brought into contact with said transfer-base, the design of the transfer-base being imparted to the printing-surface, and a carriage provided with inking-rollers adapted to reciprocate over the printing-surface, one or more racks on said carriage, a shaft geared with said rack or racks, and means for actuating said shaft.

28. In a machine for making printing-surfaces, the combination of a curved rotating transfer-base, a flat printing-surface arranged

to be brought into contact with said transfer-base, the design of the transfer-base being imparted to the printing-surface, and a carriage provided with inking-rollers adjustable in the carriage, said carriage adapted to reciprocate over the printing-surface, one or more racks on said carriage, a shaft geared with said rack or racks, and means for actuating said shaft.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD HETT.

Witnesses:

EDWIN SEGER,
GEO. W. MILLS, Jr.