

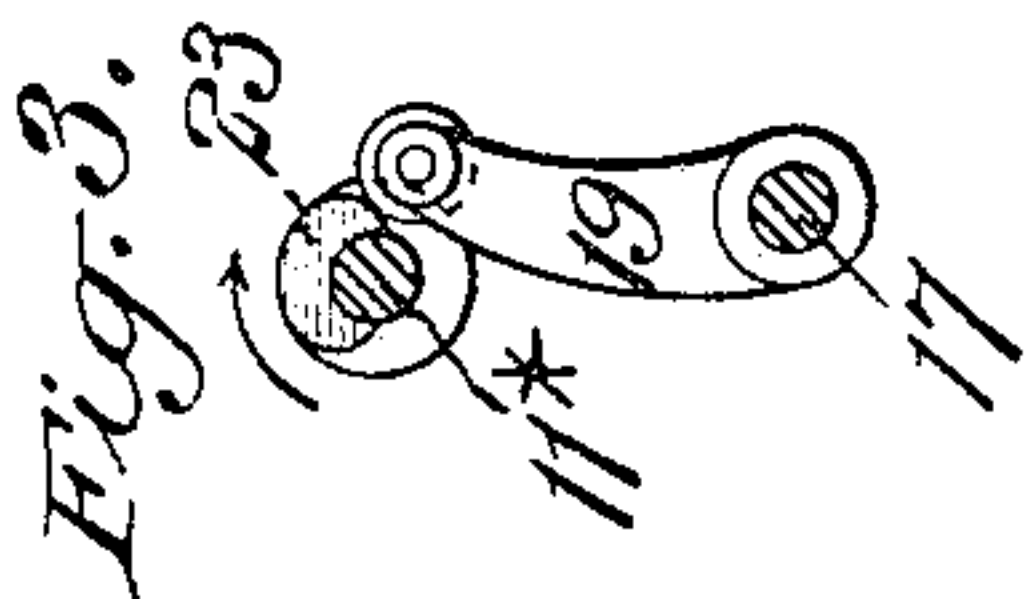
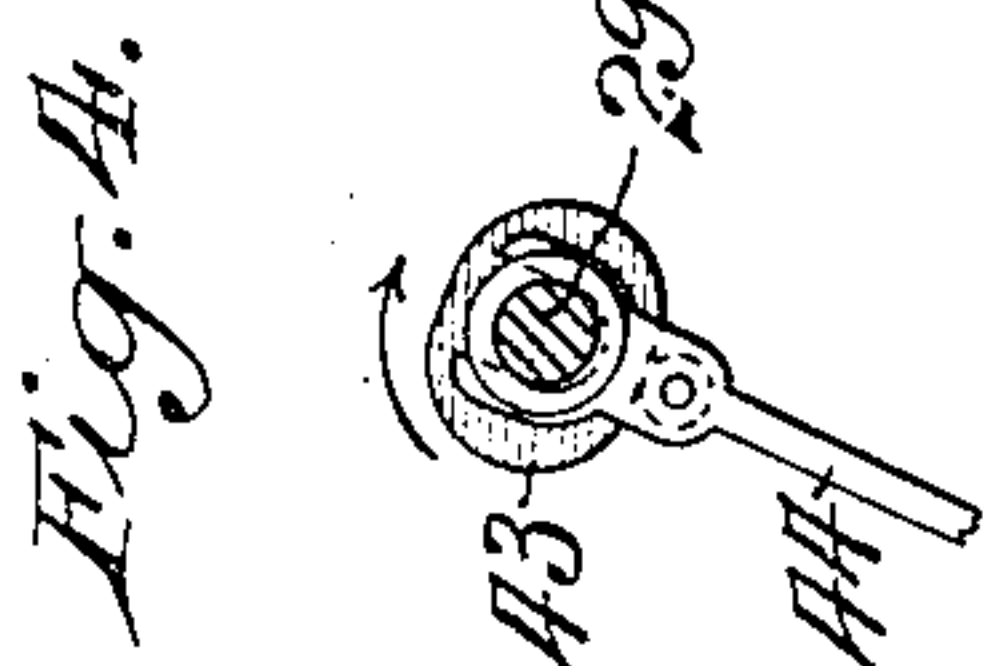
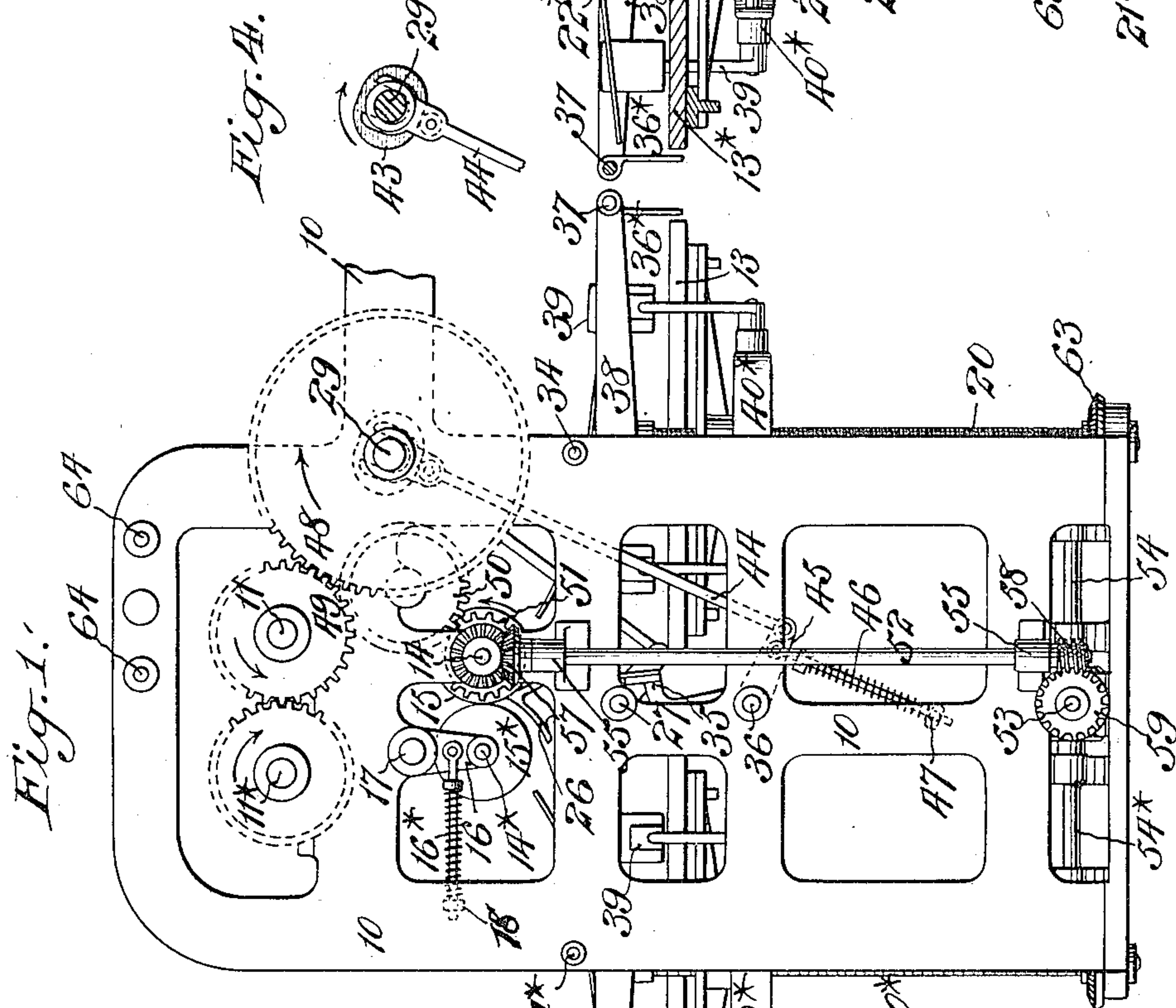
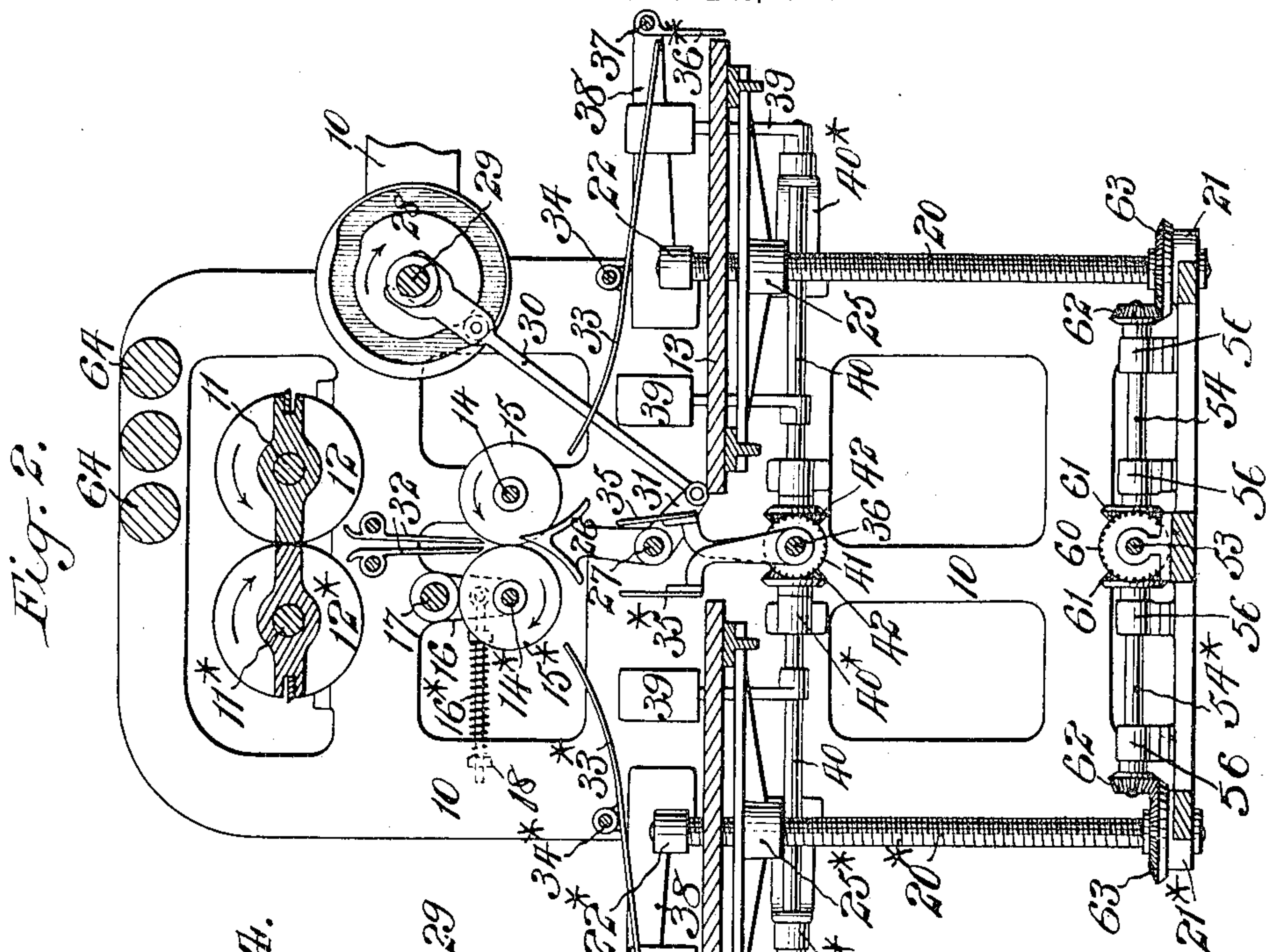
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PATENTED SEPT. 25, 1906.

C. P. COTTRELL.

MACHINERY FOR CUTTING AND DELIVERING SHEETS OF PAPER
OR OTHER MATERIAL.

APPLICATION FILED JUNE 28, 1905.



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MACHINERY FOR CUTTING AND DELIVERING SHEETS OF PAPER OR OTHER MATERIAL.

No. 831,774.

Specification of Letters Patent.

Patented Sept. 25, 1906.

Application filed June 28, 1905. Serial No. 267,333.

To all whom it may concern:

Be it known that I, CHARLES P. COTTRELL, a citizen of the United States, and a resident of Westerly, in the county of Washington and State of Rhode Island, have invented a new and useful Improvement in Machinery for Cutting and Delivering Sheets of Paper or other Material, of which the following is a specification.

10 This invention relates to machinery for cutting sheets from a running web and delivering them in flat form in piles. In such machinery the sheets can be cut much more rapidly than they can practically be deposited and collected upon a flat receiving-surface, such as a board or table, an appreciable time being required for the escape of air from between each deposited sheet and the said surface or the previously-deposited sheet thereon. In order to collect the sheets in this form as rapidly as it is desirable to cut and deliver them, I employ with a single set of cutting devices two receiving-tables and means for directing the cut sheets to one and the other of said tables by turns and laying them flat thereon; and my invention consists in certain combinations hereinafter described and claimed, in which one set of cutting devices and two receiving-tables constitute elements.

35 In the accompanying drawings, Figure 1 is a side view of cutting and delivery machinery embodying my invention. Fig. 2 is a vertical section of the same parallel with Fig. 1. Figs. 3 and 4 are detail views which will be hereinafter explained.

40 10 is a framing, which may be part of or an adjunct to the framing of a continuous web-printing machine, in connection with which this cutting and delivery machinery is used. In the upper part of this framing are the bearings for the shafts 11 11* of the two rotary cutter-reels 12 12*, and a suitable distance above the base of said framing there are arranged two horizontal receiving-tables 13 13*, the said tables being arranged a short distance apart in opposite directions from the cutter-reels. The said tables are supported, respectively, by upright screws 20 20*, two for each table, one at each side thereof. The lower ends of these screws are so fitted as to be confined vertically, but to turn freely in bearings 21 21* on the bed-plate of the fram-

ing, and their upper ends are similarly fitted in bearings in brackets 22 22* on the framing. 55 The said screws are threaded into the table-supports 25 25*, so that by turning them the tables are raised and lowered.

Directly under the cutting-reels and at a distance therefrom equal to about half the length of the sheets to be cut there is an intermittently-operating sheet-delivering device consisting of a pair of reels composed of shafts 14 14* and disks 15 15*. The reel-shaft 14 is supported in fixed bearings in the framing 10 and the reel-shaft 14* is supported in bearings in the downwardly-projecting arms 16 of a horizontal rock-shaft 17, which is supported in bearings in the framing 10. Between one of said arms and an abutment 18 on the framing there is applied a pushing-spring 16*, which exerts a constant tendency to press the reel 14* 15* toward the reel 14 15. The said rock-shaft 17 has an upwardly-projecting arm 19, arranged opposite to a cam 23 on the shaft 11* of the cutting-reel 12*, which cam serves by its action on said arm 19 to separate the delivering-reel 14* 15* from its fellow. The said rock-shaft 17 and cam 23 and the arm 19 are shown separately in Fig. 3. 80

Between the cutter-reels and the delivering-reels there is a set of stationary guides 32 for the end of the web and for the sheets cut therefrom, and between the delivering-reels and the table there is a switch consisting of a series of arms 26, projecting upward from a horizontal rock-shaft 27, arranged parallel with the delivering-reels in fixed bearings in or on the framing, the said arms having inverted-V-shaped extremities which enter between the leaves or disks of the two reels. The said switch, according as it is moved in one direction or the other by its rock-shaft, serves to direct the sheets taken by the reels from the cutters toward the table 13 or that 13*. For the purpose of operating the switch rock-shaft 27 there is a cam 28 on a rotary shaft 29, running in bearings in or on the framing, the said cam operating through a yoke-rod 30, connected with an arm 31 on the rock-shaft. 100

Over the table 13 there is a set of stationary nearly horizontal sheet-guides 33, carried by a fixed bar 34, and over the table 13* a similar set of sheet-guides 33*, carried by 105

a similar bar 34*, the said guides 33 33* having those ends which are presented near the delivering-reels curved upward to points opposite the switch 26 on opposite sides thereof. Between the adjacent ends of the two tables 13 13* there are arranged on opposite sides of the switch 26 two sets of sheet-knockers 35 35*, one set for each table, the two sets being carried by the same rock-shaft 36 which is arranged under the switch rock-shaft 27 in fixed bearings in or on the framing. Opposite said knockers 35 35* there are arranged at the other ends of the tables stationary sheet-stops 36*, one set for each table, carried by bars 37*, which are secured in brackets 38 on the framing. On opposite sides of the tables are sheet-joggers 39, carried by rock-shafts 40, having their bearings in brackets 40*, carried by the framing. The two rock-shafts 40 are geared with the rock-shaft 36 by bevel-gearing 41 42, so that all three rock-shafts may be actuated by one cam 43 on the shaft 29, before described, the said cam, which is shown in Fig. 4, being engaged by a yoke-rod 44 with an arm 45 (see Fig. 1) on the rock-shaft 36, and the said arm having applied to it a pushing-spring 46, which abuts against a stud 47 on the framing.

The shaft 29 is represented as the driving-shaft carrying a gear 48, which meshes with and drives a gear 49 on the shaft 11 of the cutter-reels 12, the two shafts 11 and 11* being geared together. The delivering-reel shaft 14 is driven through an intermediate loose gear 50 from a gear (not shown) on the cutter-reel shaft 11, the said intermediate gear meshing with a gear 51 on said reel-shaft, the said gears 50 51 and the said gear on the cutter-reel shaft being so proportioned that the peripheral speed of the delivering-reel is slightly in excess of that of the cutters. The feeding-reel 15* is driven by the positively-driven one 15 through the contact of the web or sheet passing between them. The driving-gear 48 and the gear 49 on the cutter-reel shaft 11 are so proportioned that the cutting-reels having single cutters make two revolutions for each revolution of the driving-shaft 29. The switch-cam 28 being a single-acting one moves the switch in one direction or the other for every sheet cut and to be delivered. The jogger-cam 43 being a double-acting one produces the action of the several joggers every time a sheet is delivered to either table.

The screws 20 20*, which serve to slowly depress the tables 13 13* as the piles of sheets deposited upon them increase, derive their motion from the delivering-reel shaft 14 through a vertical shaft 52 and a horizontal shaft 53 and horizontal shafts 54 and 54*, one of the latter horizontal shafts for each screw, said vertical shaft 52 having its bearings in brackets 55 on the framing and said horizontal shafts having their bearings in

stands 56 on the bed-plate. The vertical shaft 52 is geared with the delivering-reel shaft 14 by bevel-gears 57, and it has an endless screw 58 on its lower end which meshes with a worm-gear 59 on the shaft 53. The latter shaft has on it bevel-gears 60, which mesh, respectively, with bevel-gears 61 on the shafts 54 and 54*, and these latter shafts are geared, respectively, with the screws 20 20* by bevel-gears 62 63.

The web from which the sheets are to be cut is fed down between the cutting-reels by any suitable means—for example, by feeding-in rollers 64, such as are commonly used in such machinery—and its end passes down freely through the guide 32 and between the delivering-reels 14 15 14* 15*, which are then separated by the cam 23, so that their operation is intermitted. When a proper portion of the web—say about half the length of the sheet to be cut—has passed between the delivering-reels, the said cam passes by the roller at the end of the arm 19 of the rock-shaft 17 and allows the spring 16* to so push the reel 14* 15* toward that 14 15 that the web is seized between said reels at about the same time the blades of the cutters come together and sever the web, leaving the severed sheet under the control of the delivering-reels, which, running at a higher speed than the cutters and feeding-in rollers 64, so carry it forward over one or the other side of the switch 26, according as the latter has been diverted toward one or other delivering-reel and receiving-table by the action of the cam 28. The sheet thus carried forward is directed by the switch toward a horizontal position under one or other sheet-guide 33 or 33*, and over the table 13 or 13*, onto which it drops flat and whereon it is then brought to the proper position by the action of the several joggers. These operations take place alternately with respect to the two receiving-tables, the switch being moved in one direction and the other between the successive operations of the delivering-reels and directing the succeeding sheets to one and the other receiving-table by turns.

What I claim as my invention is—

1. The combination with cutters for cutting sheets from a running web and two tables for the reception of the so-cut sheets, of an intermittently-operated sheet-delivering device located between the said cutters and tables having a speed greater than that of the continuous run of the web and of the movement of the cutters and arranged and operated to permit the uncut web to pass through it and to engage the same as and after the sheets have been severed from the web, and a switch between said delivering device and tables for directing the sheets from said device to one and the other of said tables by turns.

2. The combination with cutters for cutting sheets from a running web and two ta-

bles for the reception of the so-cut sheets, of sheet-delivering reels between said cutters and tables having a speed greater than that of the continuous run of the web and of the movement of the cutters, means for separating said reels while the uncut web is passing between them, means for pressing them together during and after the severing of the sheets from the web, and a switch between said delivering-reels and tables for directing the sheets from said reels to one and the other of said tables by turns.

3. The combination with cutters for cutting sheets from a running web and two tables for the reception of the so-cut sheets, of sheet-guides arranged over said tables, an intermittently-operated sheet-delivering device located between the said cutters and tables having a speed greater than that of the continuous run of the web and of the movement of the cutters and arranged and operated to permit the uncut web to pass through it and to engage the same as and after the sheets have been severed from the web, and a switch between said sheet-delivering device and said guides for turning aside the sheets from said device under one and the other of said guides and to one and the other of said tables by turns.

4. The combination with cutters for cutting sheets from a running web and two tables for the reception of the so-cut sheets, of sheet-guides arranged over said tables, sheet-delivering reels between said cutters and guides having a speed greater than that of the continuous run of the web and of the movement of the cutters, means for separating said reels while the uncut web is passing between them and means for pressing the reels together during and after the severing of the sheets from the web, and a switch between said reels and said guides for turning aside the sheets from said reels under one and the other of said guides and to one and the other of said tables by turns.

5. The combination with cutters for cutting sheets from a running web and two ta-

bles for the reception of the so-cut sheets, of an intermittently-operated sheet-delivering device located between the said cutters and tables having a speed greater than that of the continuous run of the web and of the movement of the cutters and arranged and operated to permit the uncut web to pass through it and to engage the same as and after the sheets have been severed from the web, a switch between said sheet-delivering device and tables for directing the sheets from said device to one and the other of said tables by turns, a jogger for each table, a rock-shaft carrying the joggers for both tables and means for operating said rock-shaft and switch whereby the sheets are directed from said delivering device to one and the other of the tables by turns and are brought into proper position thereon.

6. The combination with cutters for cutting sheets from a running web and two tables for the reception of the so-cut sheets, of an intermittently-operated sheet-delivering device located between the said cutters and tables having a speed greater than that of the continuous run of the web and of the movement of the cutters and arranged and operated to permit the uncut web to pass through it and to engage the same as and after the sheets have been severed from the web, a switch between said delivering device and tables, a jogger for each table, a rotary driving-shaft, a cam on said driving-shaft for actuating said switch for directing the sheets from said device to one and the other of the said tables by turns and a cam on the same shaft for actuating said joggers to bring the sheets into proper positions on their respective tables.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 26th day of June, 1905.

CHARLES P. COTTRELL.

Witnesses:

A. R. STILLMAN,
F. GEORGE BARRY.