

(No Model.)

E. H. COTTRELL.
PRINTING MACHINE.

No. 534,427.

Patented Feb. 19, 1895.

Fig. 2.

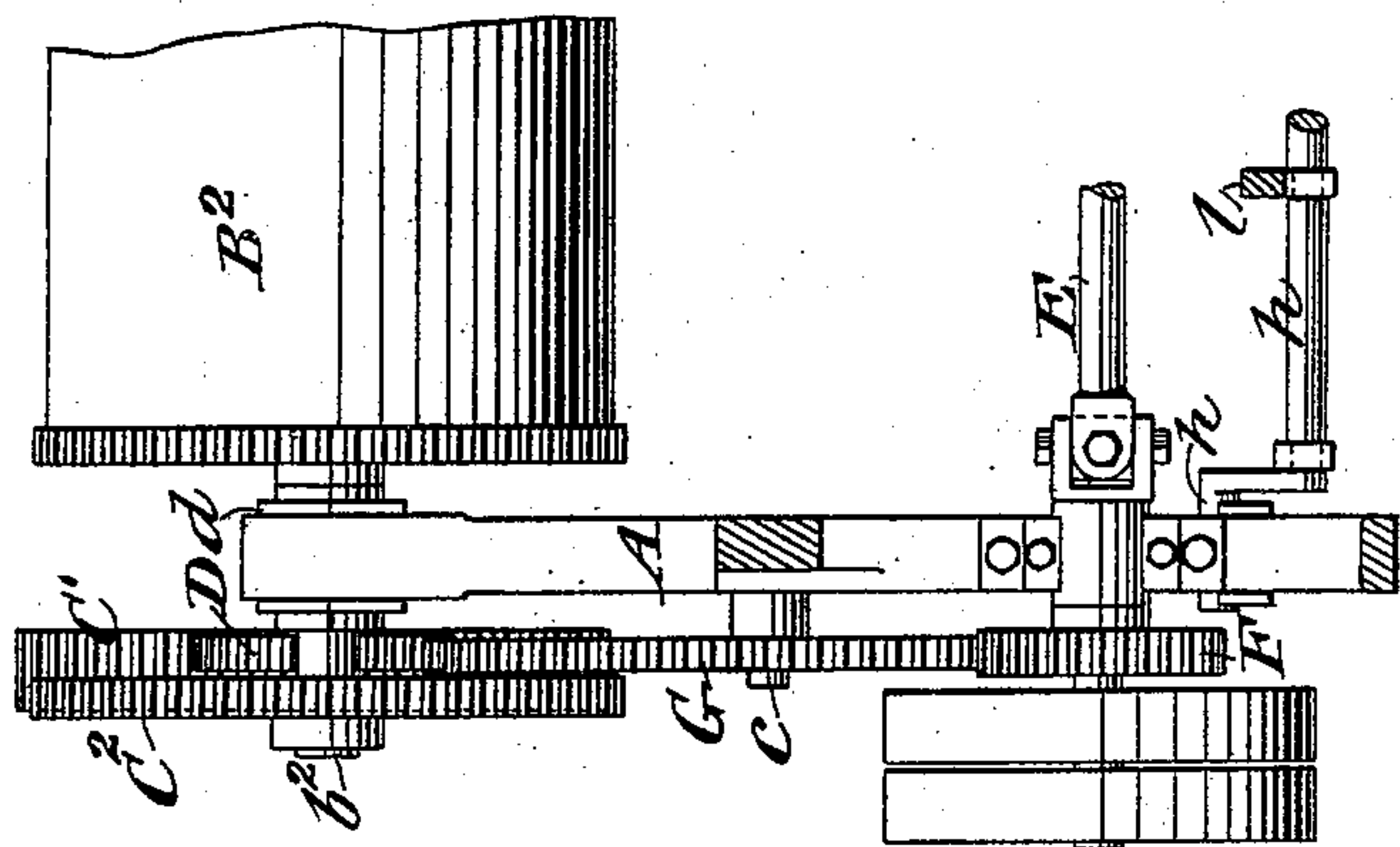
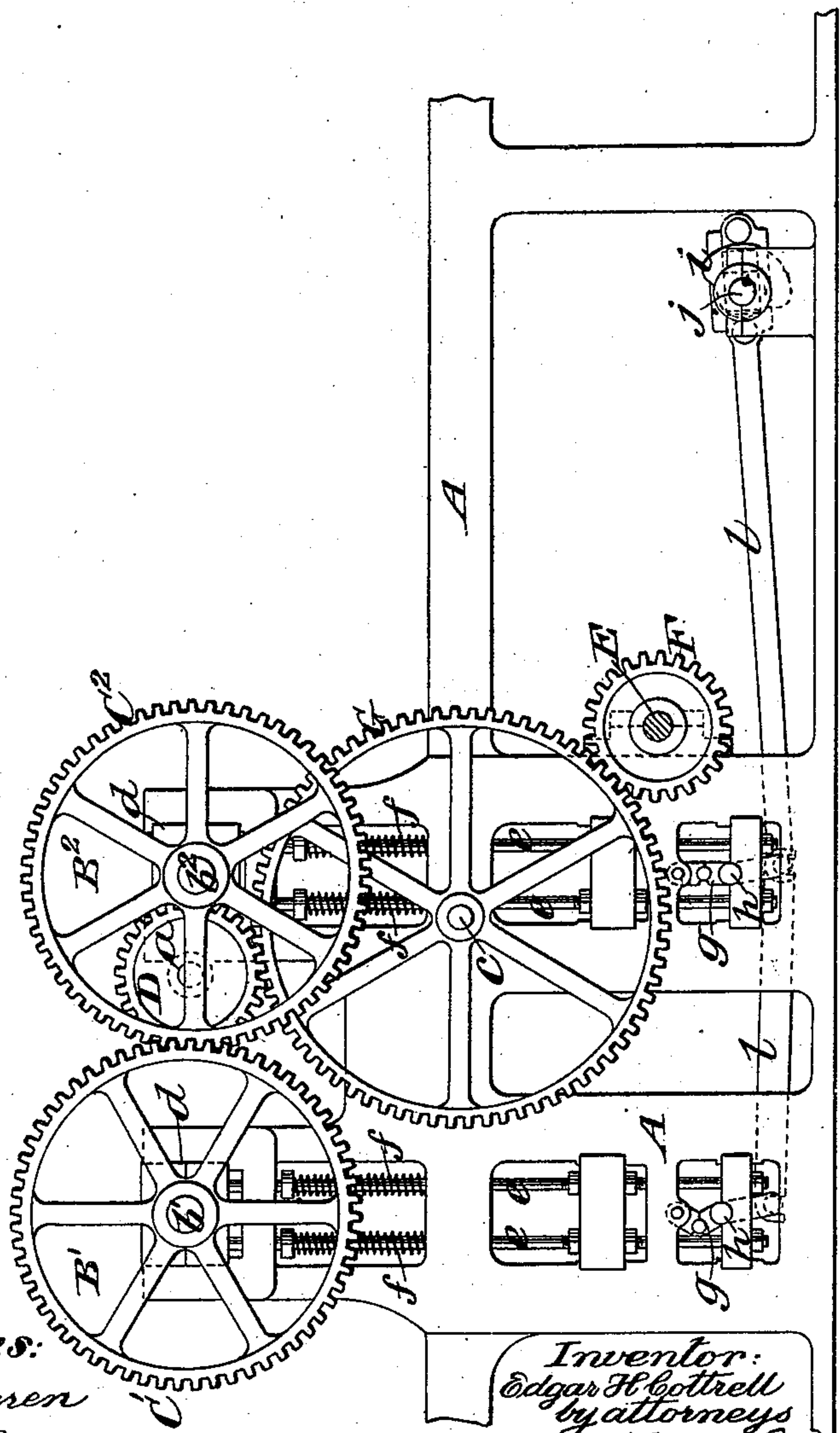


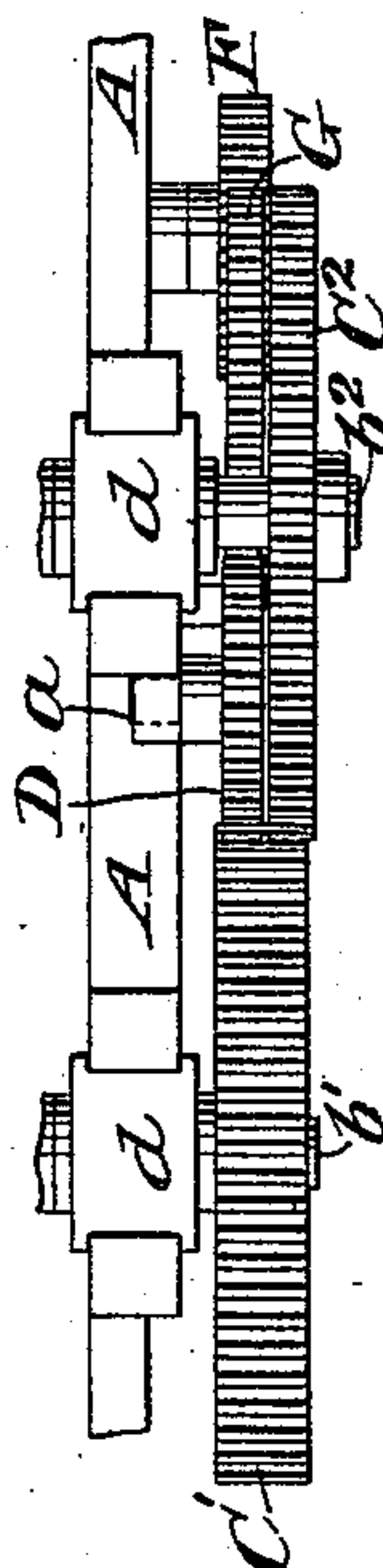
Fig. 1.



Witnesses:
C. Sundgren
George Barry,

Inventor:
Edgar H. Cottrell
by attorneys
Brown & Howard

Fig. 3.



UNITED STATES PATENT OFFICE.

EDGAR H. COTTRELL, OF STONINGTON, CONNECTICUT, ASSIGNOR TO THE
C. B. COTTRELL & SONS COMPANY, OF SAME PLACE.

PRINTING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 534,427, dated February 19, 1895.

Application filed November 16, 1894. Serial No. 528,964. (No model.)

To all whom it may concern:

Be it known that I, EDGAR H. COTTRELL, of Stonington, in the county of New London and State of Connecticut, have invented a new and
5 useful Improvement in Printing-Machines, of which the following is a specification.

This invention relates to the gearing for driving the impression cylinders of flat bed perfecting printing machines. Its object is
10 to obviate the back-lash which the lifting of the cylinders renders unavoidable in the arrangement of gearing commonly employed in such machines and also to prevent as far as
15 practical any disturbance of the relation of the gearing between the two cylinders by the lifting of either of them.

I will first describe the improvement in detail with reference to the accompanying drawings and afterward point out its novelty in the
20 claims.

Figure 1 is a side view of those portions of a flat bed perfecting machine which are necessary to illustrate the improvement. Fig. 2
25 represents an elevation of the cylinder gearing, a part of the framing and parts in immediate relation therewith at right angles to Fig. 1. Fig. 3 represents a plan view of the gearing.

Similar letters of reference designate corresponding parts in all the figures.

A is the framing of the machine.

B' B² are the impression cylinders, the shafts b' b² of which are geared together by gears C' C² fast upon them. These gears are
35 like those commonly employed for gearing such cylinders together except that the gear C' on the first impression cylinder has its face wider than the face of the gear C² on the second impression cylinder, as shown in Figs. 2
40 and 3, in order that the said gear C' may be geared not only with the said gear C² but also with a gear D which is arranged between the said gear C² and the framing A. The said
45 gear D is fitted to turn loosely on a fixed stud a secured in the framing, the axis of the said stud being in or approximately in the same horizontal plane with the axis of the two cylinders so that the said gear occupies a position at one side of the circumference of the
50 gear C' and directly between the shafts or journals b' b² of the two cylinders.

E is the main or driving shaft of the machine arranged in its usual position and carrying a driving gear F which gears with and drives a gear G which I term an intermediate
55 gear arranged to turn freely on a fixed stud c secured to the framing and gearing with the gear D. The gear F drives the gear G which in turn drives the gear D. This latter gear D gears with the wide-faced gear C' on the
60 first impression cylinder B' and so drives that cylinder, and the said wide-faced gear C' drives the gear C² on the second impression cylinder B² and so the second impression cylinder is driven from the first.

The journal-boxes d of both cylinders are represented in Fig. 1 as having applied to them the usual lifting rods e, springs f and toggles g, the said toggles being operated in the usual way by a cranked rock-shaft h actuated by a cam i on a horizontal shaft j, the
70 yoke of the said cam being connected with the rock-shafts h by means of rods l. This mechanism being common needs no further description.

Owing to the position of the gear D with its axis in or approximately in the same horizontal plane with the axis of the gear C' or at one side of the circumference of the latter gear, the lifting motion of the cylinder does
80 not appreciably disturb the relation between the pitch lines of the said two gears and therefore back-lash is avoided; and owing to the said gear D gearing with the said gear C' at the same point in the circumference of the
85 said gear at which the said gear gears with the gear C² of the other cylinder, the tendency to the turning of either gear C' or C² and its cylinder by the lifting of the other cylinder and its gear C² or C' is reduced to a minimum.

What I claim as my invention is—

1. In a perfecting printing machine, the combination with the two impression cylinders, of two gears one fast on one and the other fast
95 on the other of said cylinders and gearing together, a loose gear on a fixed axis arranged between the journals of said cylinders and gearing with the fast gear of one of said cylinders, and means of driving said loose gear,
100 substantially as and for the purpose herein set forth.

2. In a perfecting printing machine, the combination with the two impression cylinders, of two gears one fast on one and the other fast on the other of said cylinders and gearing together, a loose gear on a fixed axis arranged between the journals of said cylinders and gearing with one of said fast gears, a driving gear, and an intermediate gear gearing only with said driving gear and said loose gear, substantially as and for the purpose herein set forth.

EDGAR H. COTTRELL.

Witnesses:

FREDK. HAYNES,
GEORGE BARRY.