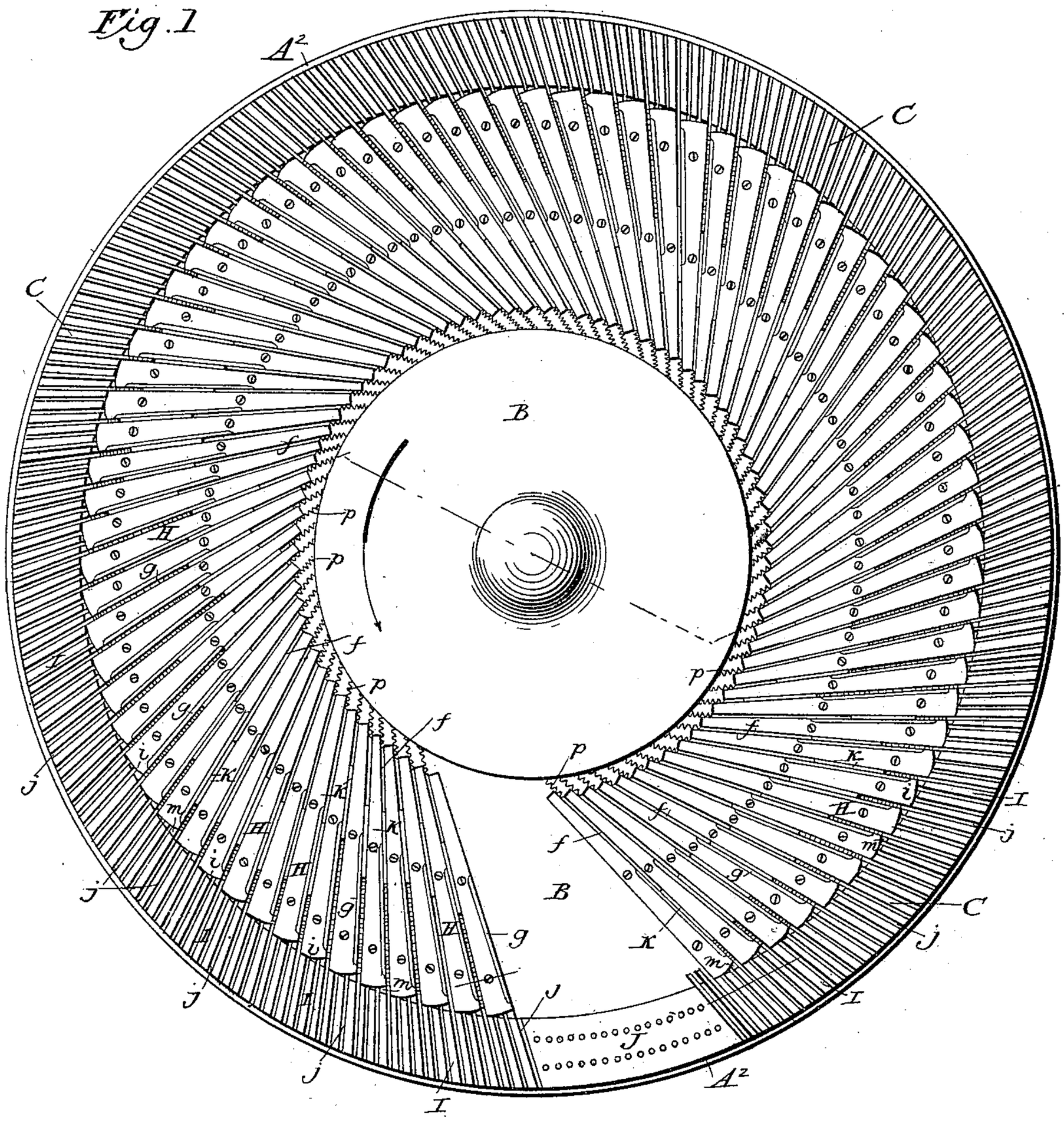
(No Model.) 3 Sheets—Sheet 1.

C. H. JOSLYN.

TYPE DISTRIBUTING MACHINE.

No. 464,477. Patented Dec. 1, 1891.

Fig. 1



Attest:

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Horace A. Dodge.

Inventor:

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by Dodges Sons,

Attys.

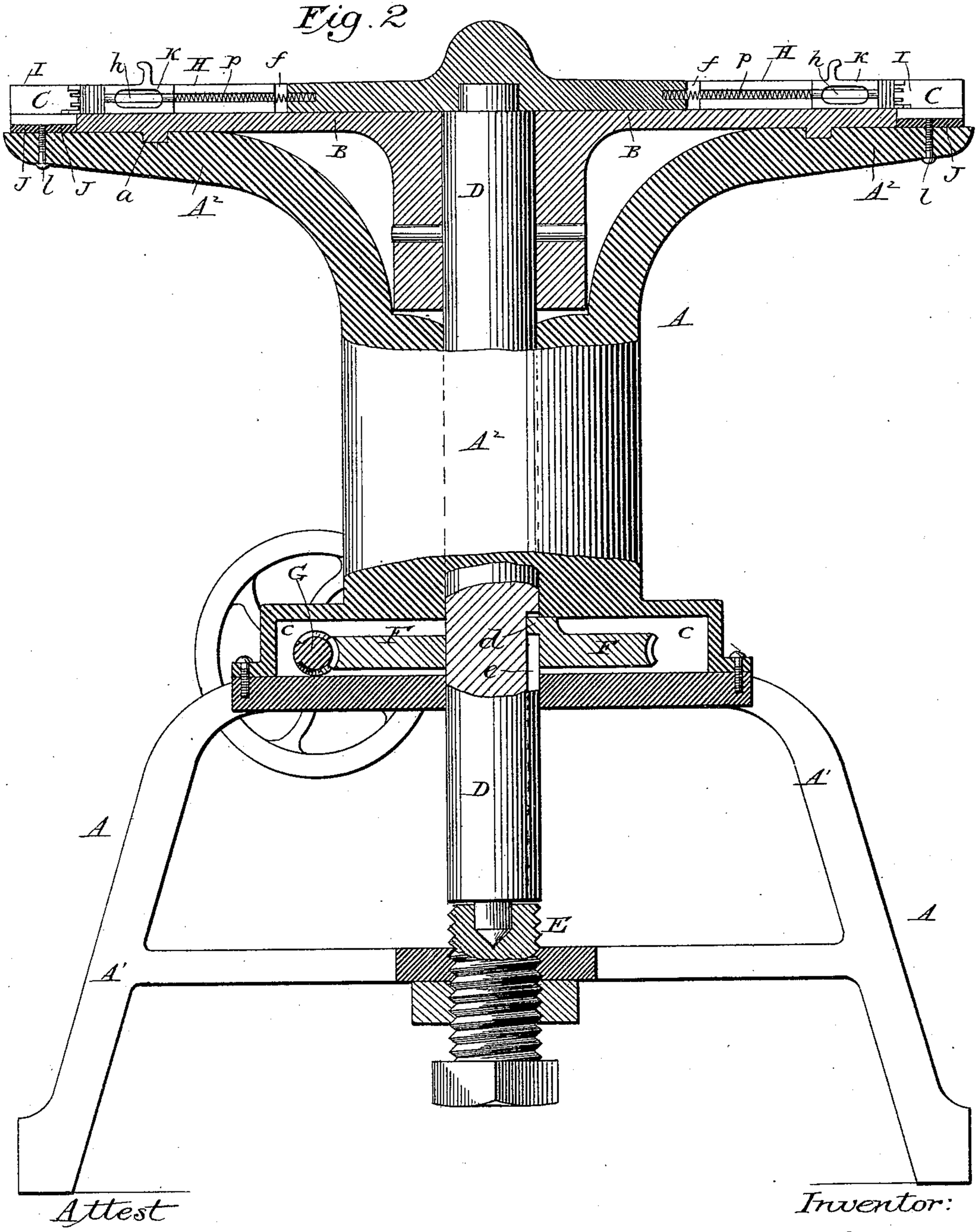
(No Model.) 3 Sheets—Sheet 2.

C. H. JOSLYN.

TYPE DISTRIBUTING MACHINE.

No. 464,477. Patented Dec. 1, 1891.

Fig. 2



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C. H. JOSLYN.

TYPE DISTRIBUTING MACHINE.

No. 464,477. Patented Dec. 1, 1891.

Fig. 3

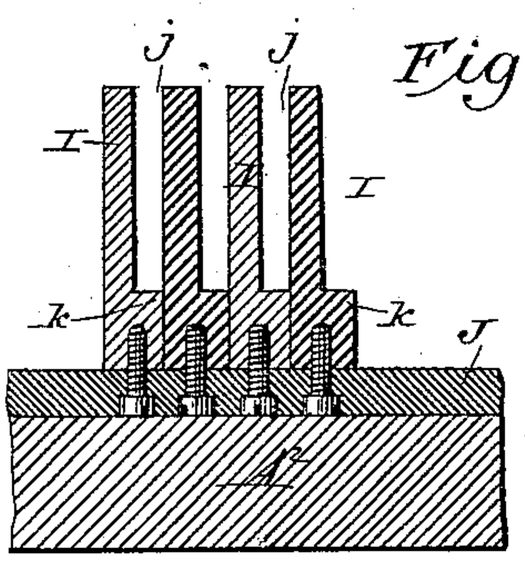


Fig. 4

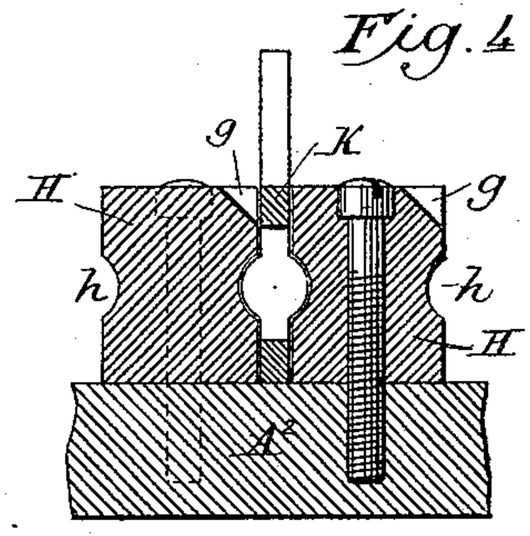
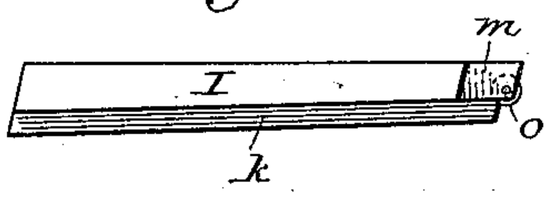


Fig. 5.

Fig. 7.



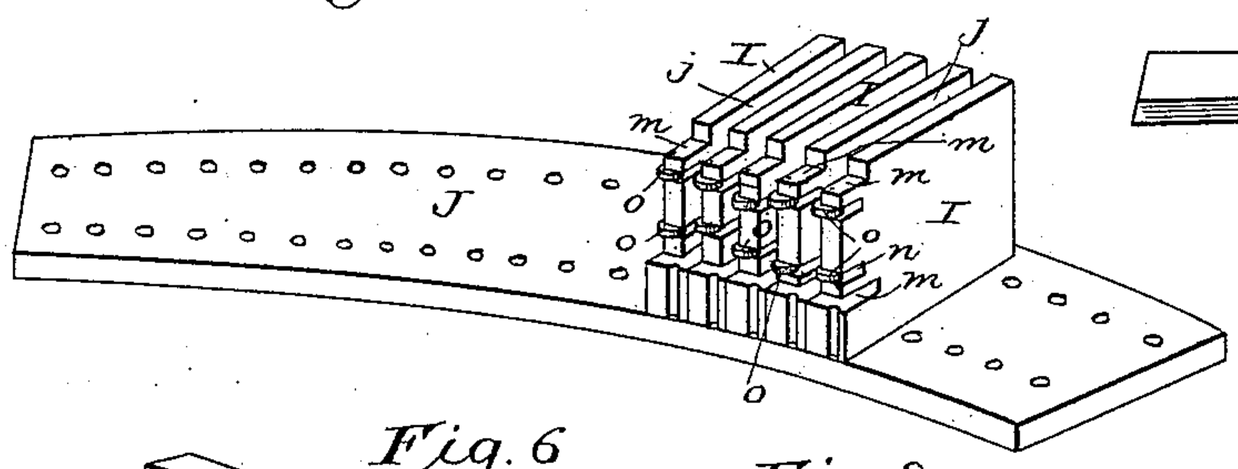
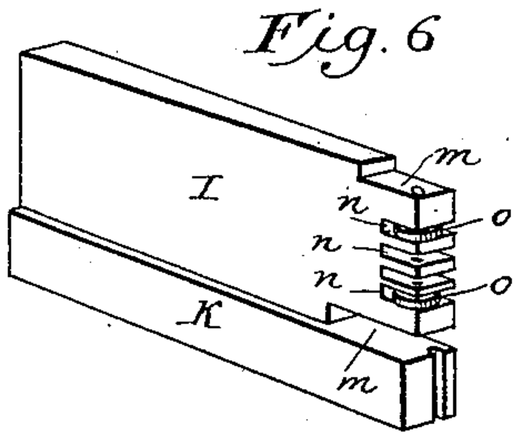
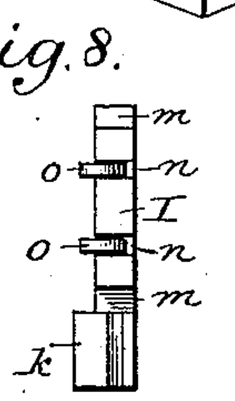


Fig. 6

Fig. 8.

Fig. 9.





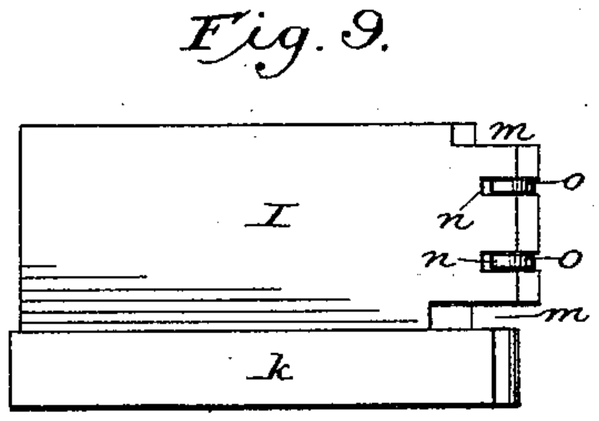


Fig. 10

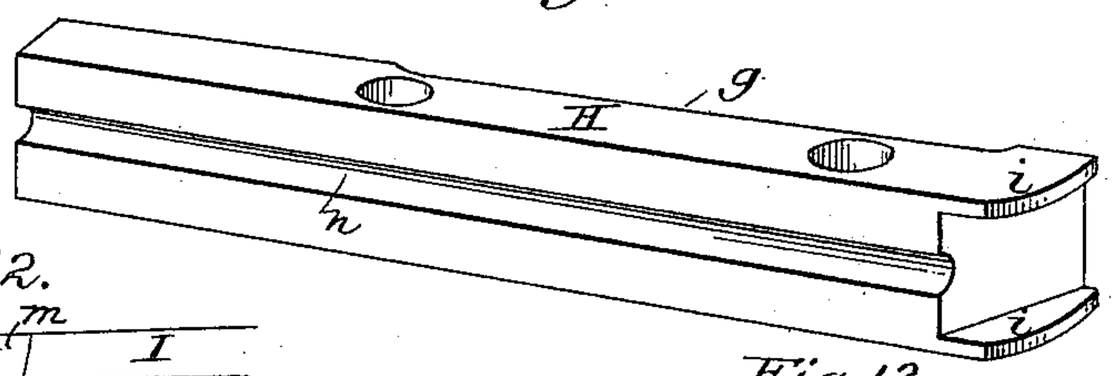


Fig. 12.

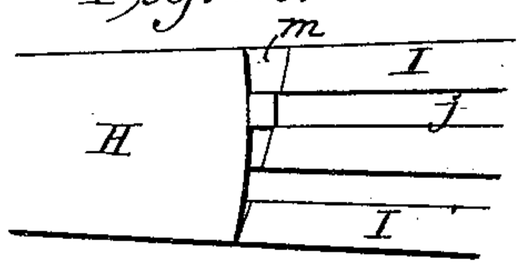
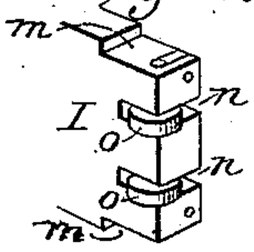


Fig. 11.

Fig. 13.



Attest:

Sidney P. Hollingsworth

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Inventor:

Charles H. Joslyn,

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Attys.

UNITED STATES PATENT OFFICE.

CHARLES HULL JOSLYN, OF ILION, NEW YORK.

TYPE-DISTRIBUTING MACHINE:

SPECIFICATION forming part of Letters Patent No. 464,477, dated December 1, 1891.

Application filed December 15, 1888. Serial No. 293,732. (No model.)

To all whom it may concern:

Be it known that I, CHARLES HULL JOSLYN, of Ilion, in the county of Herkimer and State of New York, have invented certain new and useful Improvements in Type-Distributing Machines, of which the following is a specification.

My invention relates to type-distributing machines, and is designed as an improvement upon the one for which Letters Patent were granted to John L. McMillan, bearing date August 17, 1886, and numbered 347,627.

The improvements are intended to simplify the construction and to increase the capacity and efficiency of the machine, results which I attain by the construction hereinafter set forth.

Referring to the accompanying drawings, Figure 1 is a top plan view of my machine with several of the bars which form the walls of the channels removed; Fig. 2, a side elevation, partly in section; Figs. 3 to 11, inclusive, views of parts and details which will be hereinafter explained; Fig. 12, an enlarged view showing the manner in which a type passes from the containing to the receiving channel; Fig. 13, a perspective view of the end of one of the blocks I, showing a modified form or mode of applying the disks or rollers which constitute the wards or guards.

In its preferred form the machine consists, essentially, of a wheel or disk which is arranged to rotate in a horizontal plane within a hoop or encircling band, the disk and the hoop or band being each formed with channels or passages, those of one to contain the type to be distributed and those of the other to receive the type as they are separated from the line and distributed to their appropriate cases or receivers, it being optional to employ either long receiving-cases or to drop the type into boxes or cells. In these general features the machine is quite similar to the one referred to; but for facilitating the passage of the type from the channels of the wheel to those of the encircling hoop or band I place the channels obliquely or tangential to a circle concentric with but of less diameter than the wheel or disk, and I employ at the mouths of the receiving channels or passages rotatable guards or wards, by which two features of construction the type are permitted to begin their movement from the containing to the receiving channel before the two channels come actually into alignment, and to continue that movement during the travel of the wheel, which brings them exactly into alignment, so that the passage of the type from one channel to the other is permitted to be gradual and is thus made certain. The rotatable guards or wards may be in the form of thin horizontal disks separated one from another, or they may be formed upon and integral with a cylinder, two being ordinarily used for each opening, and their positions determining the letter which shall pass, the different type being differently nicked in the same manner, essentially, as for the machine above referred to.

Experience has demonstrated that it is cheaper, easier, and for many reasons desirable to form the channels by means of separate bars or blocks secured to the disk with proper space between them than to cut slots in the solid metal of the disk, one important advantage residing in the fact that a much better finish can be given to the walls and bottoms of the channels, so that the type may move freely and without danger of lodging or catching. These and other features of construction will, however, be better understood in connection with the drawings, in which—

A indicates a supporting frame-work or pedestal consisting of a base A′ and an upper section A^2, the latter spread out at the top to form a supporting-table for a horizontal disk or type-wheel B, and for an encircling band or hoop C, in or through which are formed channels for the passage of type ejected from the channels of the type wheel or disk.

The lower face of the disk B is formed with an annular rib *a*, which is seated in a corresponding groove *b*′, by which arrangement the disk is kept concentric with its supporting bed or table, and consequently with the encircling hoop or band *c*, which is secured upon said table. The disk or type-wheel is further supported and receives rotary motion from a central vertical shaft or spindle D, which has a bearing in the tubular standard of the upper section A^2 of the stand or frame, and is carried at its lower end in a vertically-

adjustable step E, which is screwed through the cross-braces of the lower section A′ of the frame A, as shown in Fig. 2. The hub of the disk is made fast to the shaft or spindle by a through-pin, or in any other convenient manner.

As shown in Fig. 2, the base of the upper section A^2 of the standard or frame is spread out, thereby forming a chamber *c*, within which is placed a worm-wheel F, which encircles the shaft or spindle D, and is formed or furnished with a spline or feather *d* to enter a slot *e* in the spindle, so that the two shall turn in unison, while the spindle may be vertically adjusted through and independently of the wheel, which latter is held in place by the upper and lower walls of chamber *c*.

G indicates a worm carried by a shaft mounted in suitable bearings in the frame A, essentially as in the machine referred to, and meshing with the teeth of the worm-wheel F, to which, in rotating, it imparts a regular and easy rotary movement, and through it to the spindle and the type wheel or disk. By placing the worm and worm-wheel within the chamber *c* they are kept free from dust and are not liable to do injury or to be injured.

The type wheel or disk B is furnished with a series of channels *f* of a width just sufficient to receive the kind of type to be distributed and to permit them to move freely therein without liability of turning about their longer axes. These channels may be cut in the solid metal of the type wheel or disk by a suitable slotting or milling machine; but I have found that better results can be attained by employing suitably-formed blocks or bars H and securing them to the face of the disk at such distances one from another as will produce the channels or passages *f*. Instead of arranging these channels radially to the axis of the disk or wheel I prefer to make them tangential to a circle concentric with but of smaller diameter than the wheel or disk, as plainly shown in Fig. 1. The precise angle given the channels is not a matter of importance; but I find that if they be made tangential to a circle of about one-half the diameter of the type wheel or disk very satisfactory results are attained. Several advantages arise from this oblique arrangement of the channels, chief among which are the greater number of type that can be carried in the channels of a disk or wheel of given diameter and the passage of the type over the meeting line of the fixed and moving channels obliquely or cornerwise instead of squarely, as heretofore. By this mode of delivering the type from the channels, together with the cutting away of the corners of the receiving-channels and the employment of rolling or rotatable guards or wards at the mouths of the receiving-channels, I am enabled to start the type from the containing to the receiving channel before the containing and the receiving channels come into alignment. This advantage results from two causes: first, the direction of travel of the type is more nearly that of the travel or rotation of the disk, and, second, the type, by reason of their oblique or angular position relative to the meeting or dividing line of the disk and encircling hoop or ring, enter further into the receiving-channels before leaving the containing-channels than they could do were the channels radial instead of tangential, and the rounding off or beveling of the mouths of the receiving-channels can be made more gradual and the travel of the type more steady than would otherwise be possible.

The form of the blocks or bars H is shown in Fig. 1 and on a larger scale in Figs. 4 and 10, each block being of a thickness about equal to the height of ordinary type and of wedge form, or tapering from the outer toward the inner end to correspond with the decrease in space as the center of the disk is approached. Each block has one of its upper edges beveled or chamfered, as shown at *g*, and has a longitudinal groove or recess *h* formed in one or both of its side faces. The outer end of each block is also formed with two horizontally-projecting lips *i*, which are curved or cam-shaped, and which, when the blocks are secured in place upon the type wheel or disk, curve inward from the circumference of the disk, as shown in Fig. 1.

The type wheel or disk rotates in the direction indicated by arrow in Fig. 1, and the forward ends of the curved lips *i* are nearer the axis of rotation than the rear ends. Consequently a type ejected from one of the channels *f* and reaching a point outside the forward ends of the lips *i* will be moved outward by said lips in the receiving-channels *j*, which are formed in or through the encircling hoop or band C. This hoop or band C may, like the disk or type-wheel, have the channels cut in the solid metal; but I prefer to build up said hoop or band from a series of separable blocks I, so shaped that when put together they shall produce channels *j* of the same width and having the same angular position relatively to the axis of wheel B as do the channels of said wheel. The form and construction of these blocks I is well shown in Figs. 1, 2, 3, 5, 6, 7, 8, and 9, each being L-shaped in cross-section, wedge-shaped, or tapering longitudinally, and having oblique ends to conform to the inner and outer circumferences of the hoop when made up by the blocks I, placed in their oblique positions. Each block is formed with a lateral enlargement or rib *k* on one side, extending from the bottom upward a short distance, this rib serving to space the blocks the exact distance required to produce the channels *j*, and their upper faces forming the bottoms of the channels, as will be understood upon referring to Fig. 3.

Instead of securing the blocks I directly to the table or bed formed by the spreading of upper section A^2 of the frame A, I prefer to secure them in groups to segmental plates J,

which in turn are made fast to the bed or table, because by this arrangement I am enabled to expose quickly the ends of a series of the channels *f* and to obtain ready access to the inner ends of a number of the channels *j* and to the wards or guards at the mouths of said channels. This is a matter of considerable importance in the event of injury to the wards, or when it is desired to vary the arrangement thereof, as is sometimes done. The segments J are made fast to the bed or table of the main frame by screws or tap-bolts *l* or in any equivalent manner.

Each block I is cut away at its inner end, as shown at *m m*, to permit the passage of the lips or cams *i*, the ends of the blocks I thus passing between the lips or cams, and the lips or cams extending outside past the ends of the block I, as indicated in Fig. 2. Each block I has two horizontal slots *n* in its inner end to receive thin flat disks or wheels *o*, which constitute the wards or guards, and which by their joint action and relative positions determine what type or letter shall enter each channel *j*.

It is not essential that separate disks be used, as a cylinder or spindle having circumferential enlargements corresponding to the disks, as shown in Fig. 11, might be employed with like results. So, too, for the purpose of permitting ready rearrangement of the wards or guards, I propose in some cases to provide the inner end of each block I with a series of slots *m*, so that the disks can be placed in different positions at will.

The disks project beyond the sides and ends of the blocks I into the channel *j* and into the space between lips *i i*, as shown in Figs. 5, 6, 7, and 8, and owing to the oblique arrangement of the channels a type at the outer end of a channel *f*, which is nicked to correspond with the positions of the wards *o* of a channel *j*, with which the channel *f* is coming into alignment, will start from channel *f* before such alignment is accomplished. The oblique or tangential arrangement of the channels causes the dividing-line between the channels *f* and the channels *j* to be longer than the width of the channels themselves, and the type being arranged squarely across or perpendicular to the channels it follows that one corner will leave the containing-channel and enter the receiving-channel in advance of the others. A movement equal to the thickness of the particular type carries it in advance of or beyond the lips or inclines *i i*, which, as the type wheel or disk continues to rotate, bear against the type at or near its upper and lower extremities and force it outward in the channel *f*. The initial movement in and the ejection of the type from the channels *f* is effected by means of followers K, each of which is urged outward by a spiral spring *p*.

As shown in Figs. 2 and 4, the followers K are formed with a longitudinal rib designed to enter the grooves *h* of the blocks or bars H, which grooves also serve to receive the springs *p* and to hold the latter against buckling or lateral displacement. The springs are compressed and inserted at the rear ends of the channels, their forward ends bearing against the followers and their rear ends being seated in sockets in the central hub or boss of the wheel or disk, as shown in Fig. 2, sufficient space being left between the rear ends of blocks or bars H and said hub to permit the ready insertion or removal of the springs.

The purpose of beveling or chamfering one edge of each bar or block H is to facilitate the introduction of lines of type into the channels *f*, the backs of the type being laid upon the beveled face and allowed to descend until the feet of the type strike the opposite wall of the channel, whereupon the line is straightened up and permitted to drop into the channel.

Instead of arranging the wards or guards *o* to rotate, they may be stationary; but in either case I prefer that they shall project equally from the side and from the end of each block or bar I, the projection of the cam-lips *i i* preventing the type from tipping or turning edgewise before fairly entering the channels *j*.

As shown in Figs. 2 and 4, the followers K are each formed with a finger-piece by which to retract and hold them while inserting a line of type to be distributed, the usual practice being to press back the follower by the little finger and to hold it thereby until the type are dropped into place. The channels *f* or any desired number thereof being supplied with type to be distributed, the worm or screw G is put in motion by means of a belt passing from a suitable driving-pulley to a band-pulley on the worm-shaft, the worm in its turn giving a steady rotary motion to the worm-wheel F, and through it to the type wheel or disk B. As the wheel rotates it brings each channel *f* successively into alignment with each channel *j*, and whenever the outermost type of any channel comes opposite guards or wards so set as to register with the nicks of that type the type will pass from the type-wheel to the outer hoop or band and will be forced outward in the channel or passage thereof by the cams or lips *i i* as the wheel continues to rotate.

The outer channels *j* may be of any desired length, and the type which enter them may be dropped into boxes or receptacles beneath or delivered into cases or slides suitable for use in a type-setting machine, as set forth in the McMillan patent referred to.

The invention may be embodied in a machine in which an oscillatory or semi-rotary movement is adopted instead of a continuous rotary motion, or the channels may be made in bodies of rectangular, segmental, or other form, and one or the other reciprocated to carry the channels into alignment. The entire surface of the disk and hoop or any desired portion thereof may be furnished with

channels, though in practice I prefer to leave a space-blank where the feeding or charging of the channels is effected.

Having thus described my invention, what I claim is—

1. In a type-distributing machine, the combination of a type-containing and a type-receiving body, one movable relatively to the other, said bodies being each provided with channels of proper width to contain the type and said channels being oblique to the line separating the two bodies.

2. The combination of a disk or wheel and an encircling hoop or band, each provided with channels to contain type, said channels being tangential to a circle concentric with but of less diameter than the disk or wheel.

3. In combination with a movable type-containing body, as B, having channels *f*, a fixed type-receiving body, as C, having channels *j*, and rotary guards or wards located at the mouths of the channels *j*.

4. In combination with wheel or disk B, having channels *f*, a hoop or ring C, having channels *j*, and circular guards or wards *o*, projecting into the channels *j* and from the inner circumference of the hoop or ring C.

5. In a type-distributing machine, a type-containing disk or wheel having its face provided with blocks H of tapering or wedge form, the side faces of the successive blocks being arranged parallel to each other to produce intervening channels tangential to a circle concentric with but smaller than the disk or wheel.

6. In combination with a type-containing disk or wheel, an encircling hoop or ring composed of blocks I, separated a distance sufficient to produce type-channels, substantially as described and shown.

7. In combination with type wheel or disk B, a bed or table extending outward beyond the circumference thereof, segmental plates J, secured upon said bed or table, and blocks I, secured to the plates J, substantially as and for the purpose set forth.

8. In combination with type-wheel B, encircling hoop or ring C, consisting of a series of bars I, having lateral ribs *k*, said bars being placed with the rib *k* of each in contact with the side wall of the next, substantially as and for the purpose set forth.

9. The combination of a rotary wheel or disk, bars H, secured thereto and provided with cam-lips *i i* at their outer ends, bars I, arranged side by side in a circular series about the wheel and cut away to permit the passage of the lips *i i*, channels *f* and *j* between the blocks H and between the blocks I, and guards or wards at the mouths of the channels *j*.

10. In combination with frame A, spindle D, worm-wheel F, connected with spindle A by a spline or feather, but held against vertical movement, worm G, type wheel or disk B, and vertically-adjustable step E, carrying the lower end of the spindle.

11. In combination with the frame consisting of base A′ and upper section A^2 with intermediate chamber *c*, type-wheel B, spindle D, passing upward through the frame, and worm-wheel F, mounted in chamber *c* and encircling the spindle, substantially as described and shown.

In witness whereof I hereunto set my hand in the presence of two witnesses.

CHARLES HULL JOSLYN.

Witnesses:

JAS. K. HARRIS,

R. W. HOWARD.