(Model.) 2 Sheets—Sheet 1.

C. F. & W. B. HUFF.

TICKET PRINTING MACHINE.

No. 383,954. Patented June 5, 1888.

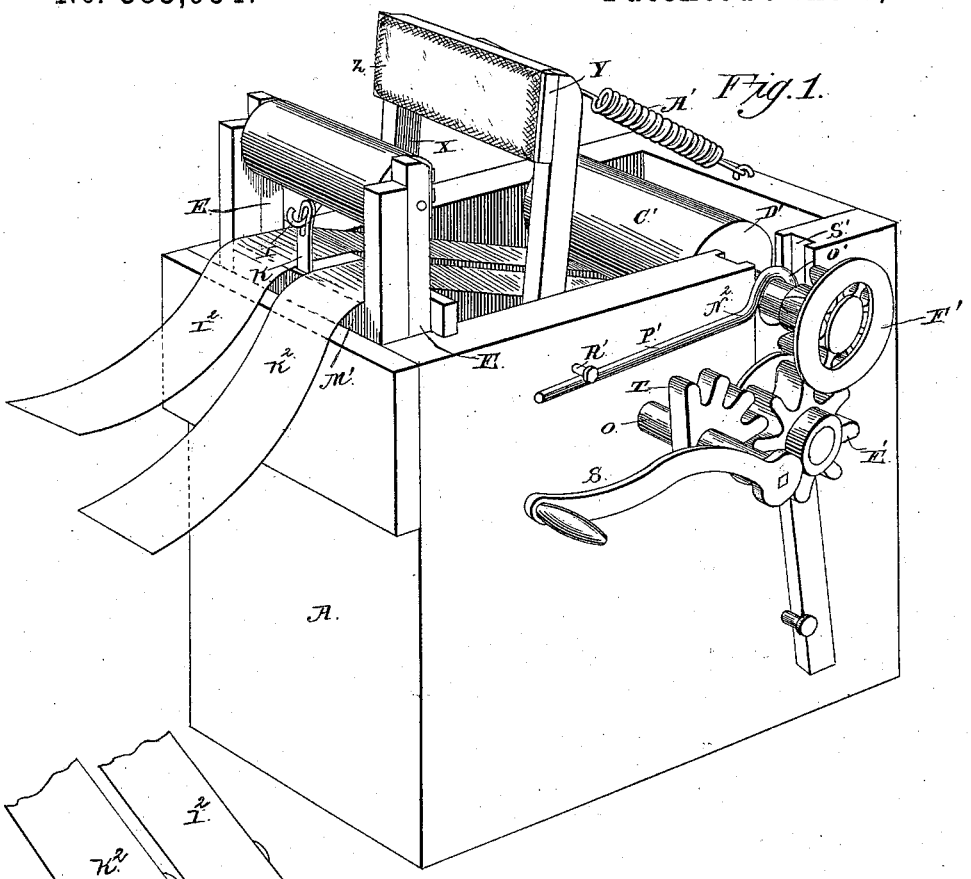

Fig. 1.

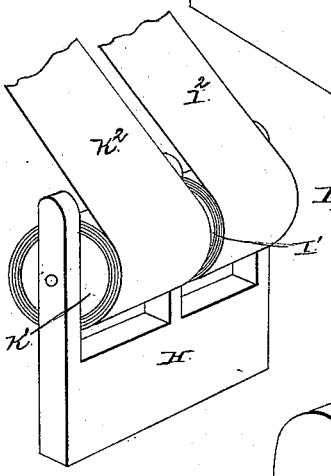

Fig. 5.

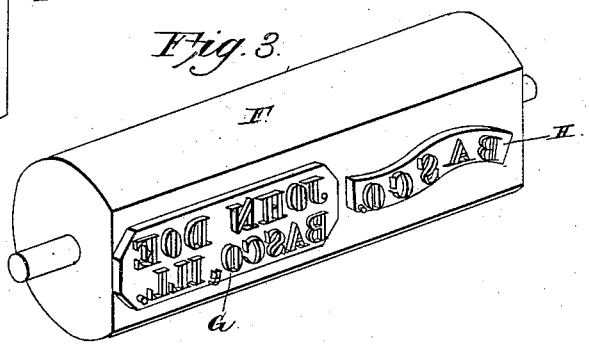

Fig. 3.

Witnesses.
M. E. Fowler.
E. G. Siggers.

Inventors.
Charley F. Huff and
William B. Huff.
By their Attorneys
C. A. Snow & Co.

(Model.) 2 Sheets—Sheet 2.

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Fig. 2.

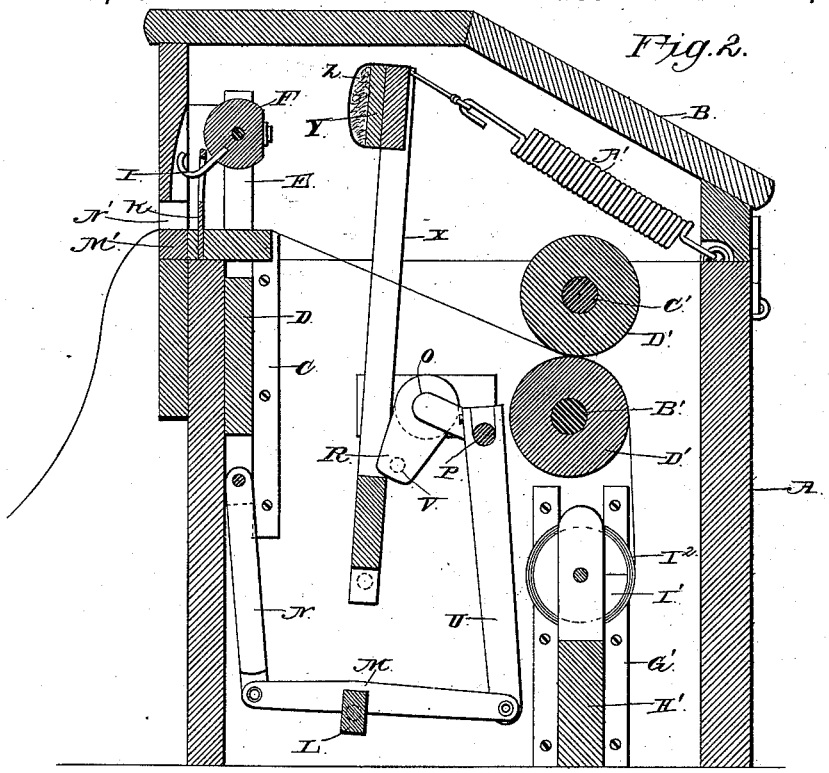
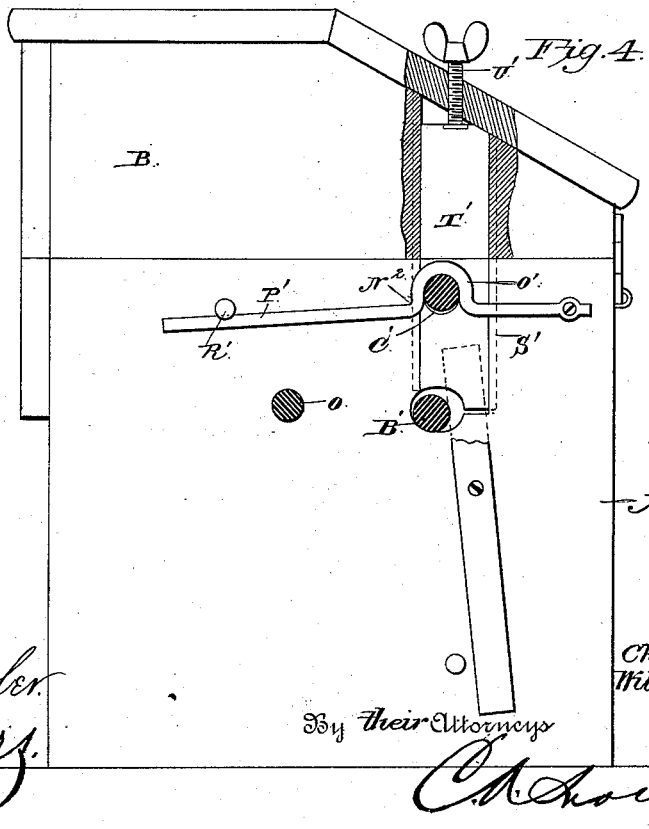


Fig. 4.



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UNITED STATES PATENT OFFICE.

CHARLEY FERRIS HUFF, OF GOLDEN, AND WILLIAM BURGES HUFF, OF BASCO, ILLINOIS.

TICKET-PRINTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 383,954, dated June 5, 1888.

Application filed July 13, 1887. Serial No. 244,232. (Model.)

To all whom it may concern:

Be it known that we, CHARLEY FERRIS HUFF and WILLIAM BURGES HUFF, citizens of the United States, residing, respectively, at Golden, in the county of Adams, and Basco, in the county of Hancock, and State of Illinois, have invented a new and useful Improvement in Ticket-Printing Machines, of which the following is a specification.

Our invention relates to an improvement in ticket-printing machines; and it consists in the peculiar construction and combination of devices that will be more fully set forth hereinafter, and particularly pointed out in the claims.

The object of our invention is to provide a machine which is adapted to print railway-tickets as they are sold, and thereby prevent the necessity of keeping a number of tickets in each office and obviate the danger of having the tickets lost or stolen.

Figure 1 is a perspective view of a ticket-printing machine embodying our improvements, with the upper portion of the inclosing-case removed. Fig. 2 is a vertical longitudinal sectional view of the same. Fig. 3 is a detached perspective view of the printing-cylinder. Fig. 4 is a side elevation, partially in section. Fig. 5 is a detail view of the frame H′.

A represents a vertical rectangular inclosing-case, the upper portion, B, of which is removable. At one end of the case, in opposite sides thereof, are vertical guides C, which serve to direct a vertically-movable frame, D. From the upper side of this frame projects a pair of vertical arms, E, in the upper ends of which is journaled a printing-cylinder, F, one side of which is flattened, as shown, and to opposite ends of the said flattened side of the printing-cylinder are secured printing-dies or electrotype-forms G and H. As many of these dies or electrotype-forms as there are stations on the road will be furnished, the said dies or forms being interchangeable on the printing-cylinder and each adapted to print a ticket for a different station; or, when it is impracticable by lack of time to effect this interchange of the dies or forms, as many of the machines as there are stations will be employed, each machine being adapted to print tickets to a different station. From the outer side of the cylinder projects a curved arm, I.

K represents a link, which extends upward from one end of the case and is provided with a vertical slot through which the arm I extends. Near the lower side of the case is journaled a rocking shaft, L, on which is secured a lever, M. The short end of the said lever is connected to the frame D by means of a link, N.

O represents a shaft, which is journaled transversely in the case A and is provided at its center with a crank, P. On opposite sides of the said crank are arms R, which are rigidly attached to the shaft and project therefrom at right angles to the crank P. One end of the shaft projects beyond the case and is provided with a crank-handle, S, by means of which the shaft may be rotated, and with a segment-gear, T.

U represents a pitman, which connects the crank P and the long end of the lever M. From the outer sides of the arm R, near the outer ends thereof, project tappet-pins V.

X represents a rocking frame, which is arranged transversely in the case near the vertically-movable frame D and has its lower end pivoted between the sides of the case, as shown. The sides of the arms of this rocking frame are adapted to be engaged by the tappet-pins, as will be hereinafter described, and at the upper end of the rocking frame, on the outer side thereof, is a transverse board, Y, on which is an inking-pad, Z, of suitable construction, adapted to supply ink to the printing-forms of dies.

A′ represents a coiled retractile spring which is connected to the upper end of the rocking frame and to the opposite end of the case. The function of the said spring is to normally move the rocking frame from the printing-cylinder and cause the side arms of said frame to be arranged in the circular paths of the tappet-pins.

B′ and C′ represent a pair of rollers which are journaled transversely in the case A, and have rubber or other elastic friction-surfaces D′, the said rollers being arranged one over the other and having their opposing sides in contact. Each of the said rollers is provided

with a projecting spindle which extends from one side of the case. On the spindle of the roller B′ is secured a spur-wheel, E′, which is adapted to engage the spur-segment. The spindle of the roller C′ has a wheel, F′, which meshes with the wheel E′, and thereby gears the two rollers together, so that the same will be caused to rotate in opposite directions at the same rate of speed. The sides of the inclosing-case below the rollers B′ and C′ are provided with vertical guideways G′, in which is secured a vertical movable frame, H′. In the upper side of the said frame are journaled drums or rollers I′ and K′, which are of suitable width and diameter. On the drum I′ is arranged a coil or roll of paper, I^2, and on the drum K′ is arranged a similar coil or roll of paper, K^2.

M′ represents a platen which is arranged horizontally across the upper edges of the lower portion of the case A under the printing-cylinder. The free ends of the coils of paper extend from the drums upward and forward through the rocking frame over the platen and project through the openings N′ made in the movable upper portion, B, of the case.

One end of the roller C′ extends through an enlarged opening in one side of the case, and is held securely in position therein by means of the rocking frame N^2, which is pivoted to the side of the case, has an offset, O′, adapted to embrace the projecting spindle of the roller, and an arm, P′, which is adapted to engage a detent-pin, R′, that projects from the side of the case at a suitable point. The upper portion of the case is provided in one side with a guideway, S′, in which is secured a vertically-movable block, T′, that is adapted to engage the upper side of the projecting spindle of roller C′. A set-screw, U′, extends through the top of the case and bears upon the upper end of the said vertically-movable block, and by turning the said screw the said block may be forced downward, so as to cause the upper roller, C′, to bear against the lower roller, B′, with any desired pressure.

The operation of our invention is as follows: A suitable quantity of printer's ink is applied to the inking-pad on the rocking frame, and the printing forms or dies are of such a nature that one of them is designed to print the required ticket, and the other is adapted to print a suitable legend or inscription at the same time. It will be observed that one of the strips of paper passes under the ends of the rollers having the ticket-printed form, and the other strip of paper passing under the roller having the other strip or die. The machine is in its initial position when the frame D is elevated, so as to cause the frame I to bear against the upper side of the slot in link K, and thereby turn the printing-cylinder, so that the flat side thereof having the printed forms or dies is presented to the inking-pad on the rocking frame, and the latter is withdrawn by its spring A′ from the printing-cylinder, so that its side arms are in the paths of the tappet-pins. The operator then grasps the crank-handle and rotates the shaft O, so as to cause the spur-segment to engage the wheel E′. While the crank P is turning from a horizontal position the frame D will be slightly raised, and at the same time the spur-segment will mesh with the wheel E′ and cause the latter and the wheel F′ to partly rotate the rollers D′ and C′, so as to feed the rolls of paper forward on the platen. While the rollers are feeding the paper, and tappet-pins on the arms R are moving the rocking frame X forward toward the printing-forms on the printing-cylinder, and when the arms R reach a horizontal position, the frame X is moved so far forward that the inking-pad is compressed against the printing-forms with sufficient force to ink them. As the shaft continues to rotate, the frame X is caused to recede from the printing-cylinder by the spring A′, and the pitman U, when it moves upward during one-half a rotation of the shaft O, is caused by the crank P to elevate the long end of lever M, and thereby lower the short outer end of the said lever and consequently cause the frame D to descend. As the said frame descends, the arm I is lowered in the slotted link K until the said arm reaches the bottom of the slot in the link, when the continued downward movement of the frame D causes the arm I to turn the printing-cylinder so as to present the printing-surface thereof having forms to the upper side of the paper strips. As the cylinder descends on the platen, the printing-forms leave their impress on the slips of paper, one of the said forms printing a ticket on one of the said strips, and the other form printing a mark on the other strip, which serves as a register or record of the printed ticket. The latter is then severed from the strip and is sold. At the end of each day the other strip containing the registering-marks is severed and serves as a register of the number of tickets sold during the day and can be preserved for reference.

The frame H′ is adapted to be removed from the case A when the strips of paper become exhausted, to permit new strips to be secured to the drums.

In order to remove the upper roller, C′, the top B of the case is first removed, so as to release the block T′ from the spindle of the said roller, and the rocking frame N^2 is then disengaged from the detent-pin and caused to release the spindle of the roller, as will be readily understood. It is necessary to remove this roller C′ from time to time in order to arrange the strips of paper between it and the roller B′.

A ticket-printing machine thus constructed is adapted to print railway-tickets in a very short time, thereby obviating the necessity of keeping a quantity of tickets on hand, and consequently avoid the danger of tickets being lost or stolen.

Having thus described our invention, we claim—

1. The combination, in a ticket-printing machine, of the vertically-movable frame D, the printing-cylinder journaled therein and having the arm connected to a fixed part of the machine to oscillate said cylinder in the same, the vertical rocking frame X, carrying the inking-pad, the horizontal lever centrally pivoted below said frames and engaging the same to swing the inking-pad against the printing-cylinder and vertically move the frame to oscillate said cylinder, substantially as described.

2. The combination, in a ticket-printing machine, of the vertically-movable frame, the printing-cylinder journaled therein and having the arm I, the fixed link K, slotted to receive said arm, the vertical rocking frame X, carrying the inking-pad, the horizontal lever centrally pivoted below said frames and engaging the same to swing the pad against the cylinder and vertically move the cylinder-frame to cause said cylinder to oscillate therein, substantially as described.

3. The combination, in a ticket-printing machine, of the vertically-movable frame D, the printing-cylinder journaled therein and adapted to be turned first in one direction and then in the contrary direction by the movement of the frame, the rocking frame X, having the inking-pad, the shaft O, having the crank and the tappet-arms R, the latter being adapted to engage the rocking frame to actuate the same and the lever M, the link N, connecting the said lever to the frame D, and the pitman U, connecting the lever to the crank P, substantially as described.

4. The combination, in a ticket-printing machine, of the vertically-movable frame D, the printing-cylinder journaled therein and having its arm connected to a fixed part of the machine to oscillate said cylinder in its frame, the vertical rocking frame X, carrying the inking-pad, the horizontal lever centrally pivoted to vibrate said cylinder and pad-frames, the feed-rollers B′ C′, having the spur-wheels geared together, the actuating-shaft O, operating the horizontal lever and having the segment-wheel engaging one of the spur-wheels, substantially as described.

5. The ticket-printing machine having a case provided interiorly with the vertical guide-ribs, the removable frame H, playing vertically in said guide-ribs, and the drums journaled in said frames and carrying the rolls of paper, substantially as described.

6. The combination, in a ticket-printing machine, of the feed-rollers B′ and C′, journaled in the case or frame, the roller C′ being vertically adjustable in said case and removable therefrom, and the locking-arm pivoted to the case or frame and having the offset adapted to engage the spindle of the removable roller, substantially as described.

In testimony that we claim the foregoing as our own we have hereto affixed our signatures in presence of two witnesses.

CHARLEY FERRIS HUFF.
WILLIAM BURGES HUFF.

Witnesses:
F. M. STAHL,
C. H. DETMERS.