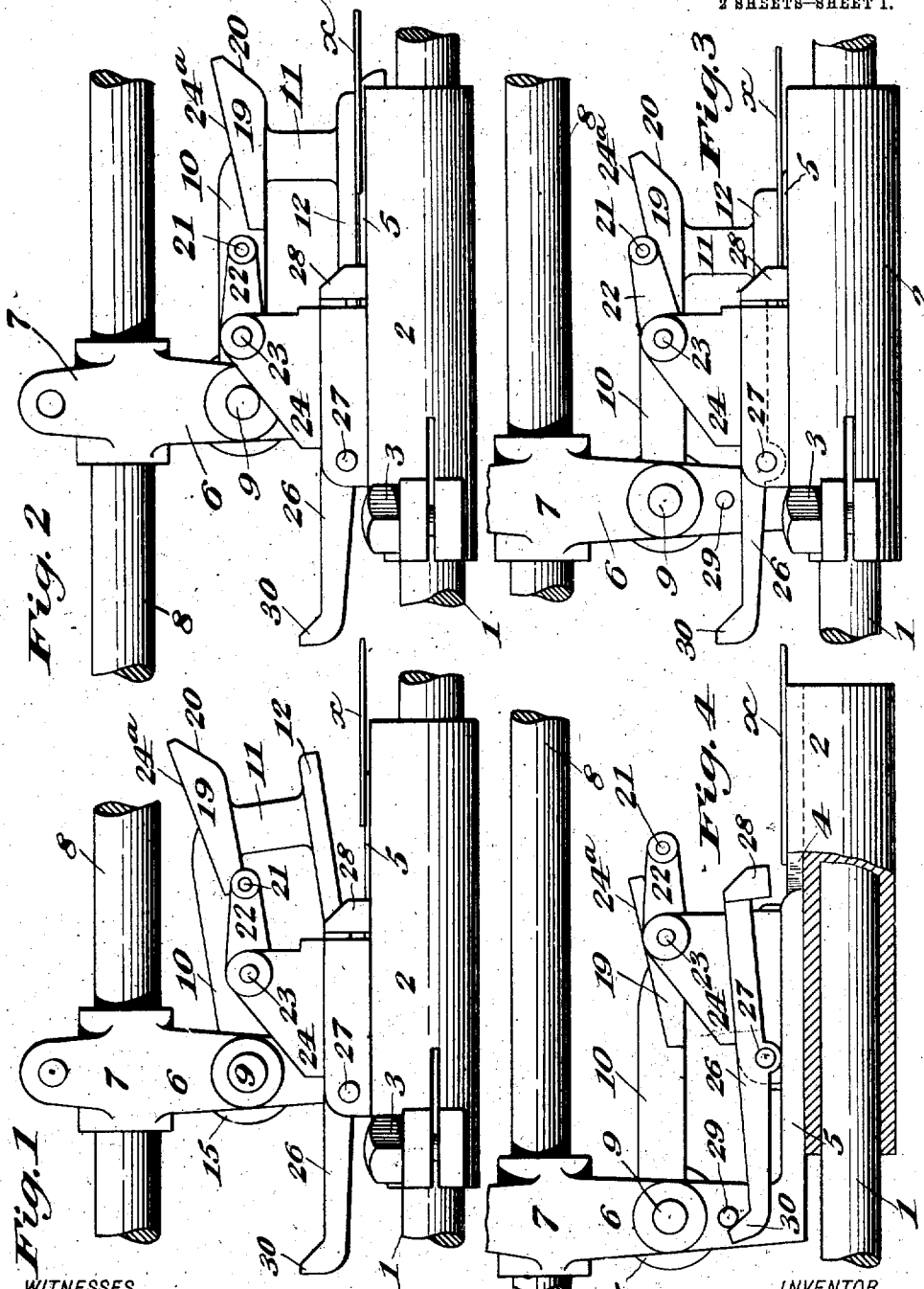


971,991.

Patented Oct. 4, 1910.

2 SHEETS-SHEET 1.



WITNESSES
S. H. Klimm
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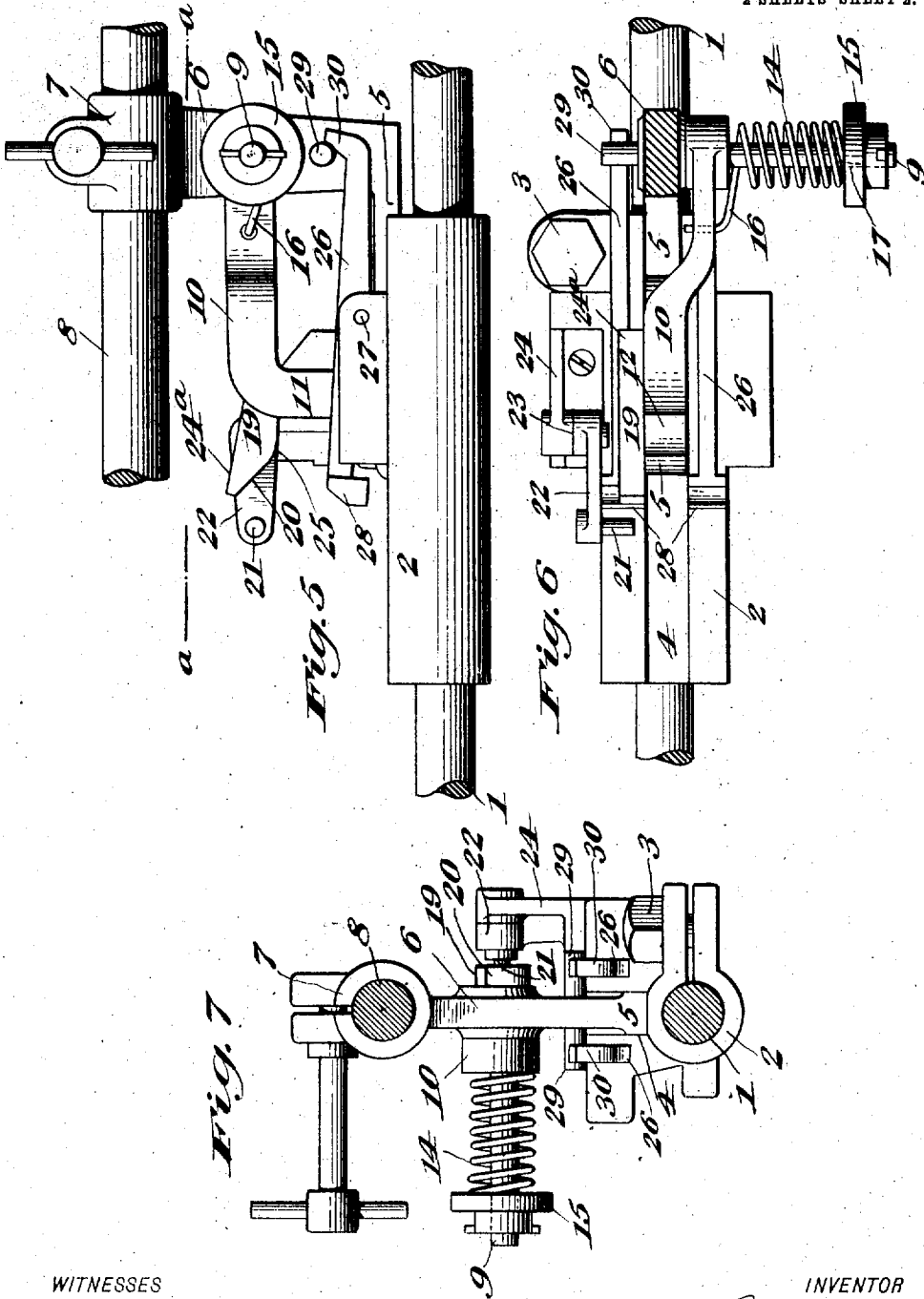
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B. GUSTAFSON.
 REGISTERING DEVICE.
 APPLICATION FILED APR. 20, 1908.

971,991.

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2 SHEETS—SHEET 2.



WITNESSES

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BERNHARD GUSTAFSON, OF JAMAICA PLAIN, MASSACHUSETTS.

REGISTERING DEVICE.

971,991.

Specification of Letters Patent.

Patented Oct. 4, 1910.

Application filed April 20, 1908. Serial No. 428,267.

To all whom it may concern:

Be it known that I, BERNHARD GUSTAFSON, a citizen of the United States, residing at Jamaica Plain, Suffolk county, Massachusetts, have invented certain Improvements in Registering Devices, of which the following is a specification.

This invention relates to certain improvements in registering devices such as are particularly designed and adapted for employment in connection with sheet feeders, printing machines, and the like, for gaging the position of sheets in registry with the operative parts of such mechanisms, and the object of the invention is to provide a device of this general character of a simple and comparatively inexpensive nature and of a strong and durable construction which shall present certain features of novelty and improvement whereby the device is rendered more certain and uniform in its operation.

The invention consists in certain novel features of the construction, and combinations and arrangements of the several parts of the improved sheet registering device, whereby certain important advantages are attained, and the device is rendered simpler, less expensive and otherwise better adapted and more convenient for use, all as will be hereinafter fully set forth.

The novel features of the invention will be carefully defined in the claims.

In the accompanying drawings which serve to illustrate my improvements—Figure 1 is a side elevation of a registering device constructed according to my invention with its gripper jaws or members advanced and separated in position to grip a sheet to be registered; Fig. 2 is a view similar to Fig. 1, but showing the gripper jaws or members closed in position to grip the sheet between them; Fig. 3 is a view similar to Fig. 2, but showing the gripper jaws or members retracted to bring the sheet into registry; Fig. 4 is a view similar to Fig. 3, but showing the gripper jaws or members still further retracted to release the registered sheet therefrom, and to remove the gage from contact with said sheet; Fig. 5 is a view similar to Fig. 4, but showing the opposite side of the improved registering device; Fig. 6 is a sectional plan view taken in the plane indicated by the line *a-a* in Fig. 5, and showing certain features of construction of the improved registering device which will be

hereinafter described, and, Fig. 7 is a sectional view taken vertically through the supporting means and showing the improved registering device in end elevation.

In these views 1 represents a supporting rod or member which may be a part of sheet feeder, or other mechanism in connection with which the improved sheet registering device is to be employed, and 2 represents a bracket, slidable on said rod or member so that it may be adjusted laterally of the path of the sheet to be registered, a set screw 3 being provided for holding the bracket securely in position when adjusted.

The bracket 2 has a channel or guideway 4, extended longitudinally along its upper surface, as clearly shown in Figs. 4, 6 and 7, and in said channel or guideway is arranged to slide a lower gripper jaw or member 5, carried by an arm 6 extended downwardly from a bracket 7 which is adjustably held upon an actuating rod or member 8, extended above and parallel with the supporting rod or member 1, and is adapted to be moved endwise in any preferred manner, as, for example, by means of a suitable operative connection with the mechanism to which the improved registering device is applied for use, in order to actuate the registering device.

9 represents a pin or screw set in and projecting from one side of the arm 6 at a suitable elevation above the lower gripper jaw or member 5, and 10 represents an arm or lever having one end pivotally supported on said pin or screw, and having its opposite free end directed forwardly above the lower gripper jaw or member and provided with an angular downwardly directed extremity 11, the lower end of which carries the upper gripper jaw or member 12, which is adapted, when the arm or lever 10 is moved pivotally upon the pin or screw 9, to be moved toward and from the lower gripper jaw or member 5 in such a manner as to grip and release the sheets to be registered as will be hereinafter explained.

14 represents a spring coiled upon the pin or screw 9 and having one end connected as shown at 16 with the arm or lever 10, while its opposite end has connection, as shown at 17 with a nut 15, having adjustable threaded engagement with the outer end of the pin or screw 9 in such a manner that the tension of said spring is exerted normally to hold

the movable upper jaw or member 12 pressed down yieldingly toward the lower jaw or member 5 so as to be adapted to grip the lateral edge portion of the sheet α to be registered when said edge portion of the sheet is brought in position between the jaws or members as shown in the drawings.

19 represents a cam block secured upon the free end of the pivoted arm or lever 10 and having at its outer extremity a beveled lower cam surface 20 adapted, when the rigid arm 6 carrying said pivoted arm or lever 10 is moved, by the longitudinal movement of the actuating rod or member 8 over toward the center of the mechanism to which the improved registering device is applied for use, from the position shown in Figs. 3 and 4, to that shown in Fig. 1, to contact upon a pin or projection 21 carried by the free end of an arm 22, pivoted at 23 upon a projection 24 at one side of bracket 2, and supported upon a shoulder 25 upon said projection, whereby the cam block 19 is caused to ride up on said pin or projection 21 so that the movable arm or lever 10 will be swung pivotally upward as shown in Fig. 1, so as to raise the upper jaw or member 12 away from the lower jaw or member 5, and permit said upper jaw to stand in position above the edge portion of the sheet α to be registered.

In the movement of the actuating rod or member 8 in this direction the lower gripper jaw or member 5 carried by the rigid arm 6 will also be engaged beneath the edge portion of the sheet α to be registered, as clearly shown in Fig. 1, so that the gripper jaws or members are presented in position to grip said sheet. When the actuating rod or member 8 shall have reached the limit of its movement in this direction, the inner end of cam block 19 opposite to the beveled outer end 20 thereof is adapted to pass beyond and out of contact with the pin 21, whereupon the spring 14 is permitted to exert its tension to press the movable arm or lever 10 and the upper gripper jaw or member 12 carried thereon downwardly as shown in Fig. 2, so as to cause the edge portion of the sheet α to be registered to be gripped and held between the upper and lower jaws or members 12 and 5.

When the edge portion of the sheet α shall have been gripped between the members 12 and 5, the reverse movement of the actuating rod or member 8 occurs, whereupon the said jaws or members are caused to move outwardly toward the side of the mechanism to which the improved registering device is applied, carrying the sheet α with them by reason of said sheet being held between said jaws or members.

24^a represents an inclined upper cam surface upon the cam block 19 adapted, upon this reverse movement of the parts, to be

engaged beneath the pin or projection 21 upon the pivoted arm 22 in such a way as to lift said arm 22 from the shoulder 25 and out of the path of the cam block, as shown in Fig. 3, the movable upper jaw or member 12 being yieldingly pressed upon the sheet by the tension of spring 14 with just sufficient pressure to insure against the slipping of the sheet from between said jaws or members 12 and 5.

26, 26 represent gages or stops pivotally supported at 27, 27 upon the adjustable bracket at 2 at opposite sides of the channel or guideway 4 therein, and in the reverse movement of the parts above described the edge of the sheet α to be registered is drawn laterally of its path through the mechanism to which the improved registering device is applied, into accurate contact upon the heads 28, 28 of said gages or stops 26, 26, so as to insure the proper registry of said sheet.

The tension of spring 14 is so adjusted that when the sheet shall have been thus moved in registry by contact upon the heads 28 of gages 26, the further retracting movement of the parts operates to withdraw the gripper jaws or members 12 and 5 from engagement with the edge portion of said sheet, said jaws or members slipping off at the edge of the sheet which is held against further movement by contact with the heads of said gages or stops 26, so that the sheet is thereupon free to be continued upon its path through the printing machine or other mechanism in connection with which the registering device is employed.

The arm 6 is provided with oppositely extended pins or projections 29, 29, which in this further retracting movement of parts are adapted to contact with upturned cam projections 30, 30 upon the outer ends of the gages or stops 26, 26 in such a manner as to rock said gages or stops pivotally, whereby their heads 28, 28 are elevated out of contact with the edge of the registered sheet α as seen in Fig. 4, so that when the registered sheets are drawn through the mechanism in connection with which the registering device is used, their edges will not be permitted to wear and cut into the heads of the gages as would be the case were the sheets permitted to remain in contact therewith during the rapid movement caused by the seizing of said sheets by the press grippers or similar devices.

Thus it will be seen that the reciprocatory movement of the rod or member 8 in one direction to the position shown in Fig. 1 causes the jaws or members 12 and 5 to be opened and presented in position to grip the sheet to be registered, and afterward releases the upper jaw 12 and permits the same to be pressed yieldingly upon said sheet, while the movement of said rod 8 in

the reverse direction first moves the sheet into registry and afterward releases said sheet from the gripper jaws or members and elevates the gages or stops 26, 26, out of contact with the sheet.

The brackets 2 and 7 being adjustably held upon the rods or members 1 and 8, it is evident that the position of the improved registering device may be adjusted to accommodate different sizes of sheets and differences in the mechanisms to which the improved registering device is to be applied for use, and by adjustment of the nut 15, the tension exerted by the spring 14 upon the upper jaw or member 12 may be conveniently regulated to accommodate different classes of work so as to insure proper registry without liability of nicking the edges of the sheets.

From the above description of my improvements, it will be seen that the sheet registering device constructed according to my invention is of an extremely simple and comparatively inexpensive nature, and is particularly well adapted for use by reason of the accuracy and uniformity of its operation and of the convenience with which it may be adjusted to meet varying requirements of service, and it will also be apparent from the above description of my improvements, that the registering device is capable of considerable change without material departure from the principles and spirit of the invention and for this reason I do not desire to be understood as limiting myself to the precise form and arrangement of the several parts of the device herein set forth in carrying out my invention in practice.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. A sheet registering device having sheet moving means comprising a reciprocatory part pivoted for movement in and out of engagement with a sheet to be registered, a gage capable of operation to limit the movement of such sheet when impelled by said sheet moving means and a cam engaging device movable in and out of operative position and held against reciprocatory movement in unison with the sheet engaging part, and adapted for engagement with said part at a point remote from the pivotal connection of the sheet engaging part to lift said part out of contact with the sheet, and adapted to hold the sheet engaging part out of contact with the sheet during further reciprocatory movement of said part.

2. A sheet registering device having sheet moving means comprising a reciprocatory part pivoted for movement in and out of engagement with a sheet to be registered, a gage capable of operation to limit the movement of such sheet when impelled by

said sheet moving means a cam engaging device held against reciprocatory movement in unison with the sheet engaging part and adapted, when the sheet engaging part is moved in one direction, for engagement with said part at a point remote from the pivotal connection of the sheet engaging part to lift the latter out of contact with the sheet, and adapted to hold the sheet engaging part out of contact with the sheet during further movement of said part in that direction, and means for moving said device out of position for lifting engagement with the sheet engaging part to permit the latter to contact with the sheet to be registered.

3. A sheet registering device having sheet moving means comprising a part adapted for engagement with a sheet to be registered, a gaging device movable in and out of position for contact with the sheet to be registered, said sheet engaging part, when in contact with a sheet to be registered, being adapted for reciprocatory movement independent of said gaging device to move the sheet in registering engagement therewith, and means for operating the gaging device from the reciprocatory movement of the sheet engaging part.

4. A sheet registering device having sheet moving means comprising a part adapted for engagement with a sheet to be registered, a gaging device adapted for contact with the sheet to be registered, said sheet engaging part, when in contact with the sheet to be registered, being adapted for reciprocatory movement independent of the gaging device to move the sheet in registering engagement therewith, and means connected for reciprocatory movement in unison with the sheet engaging part and arranged to withdraw the gaging device out of position for contact with the sheet.

5. A sheet registering device having a reciprocatory gripper pivoted for movement in and out of contact with a sheet to be registered, and means for withdrawing the gripper out of position for contact with the sheet and comprising relatively movable members one of which is held against movement in unison with the gripper and is adapted for lifting engagement therewith at a point remote from the pivotal connection of the gripper, when the gripper is reciprocated in one direction, to lift the gripper out of position for contact with the sheet, and is adapted to hold the gripper in lifted position during its further movement in that direction, the other member being carried by the gripper and being adapted, when the latter is reversely moved, to throw the lifting member out of operative position.

6. A sheet registering device having a reciprocatory gripper adapted for engagement with sheets to be registered, a gage capable of operation to limit the movement

of such sheet when impelled by said sheet
moving means and a device held against
movement in unison with said gripper and
adapted to hold the gripper from contact
5 with the sheets during movement of said
gripper in one direction, said device being
capable of movement out of position for
holding engagement with the gripper to per-
mit said gripper to be engaged with the

sheets during its movement in a reverse di- 10
rection.

In witness whereof I have hereunto signed
my name this 2nd day of April 1908, in the
presence of two subscribing witnesses.

BERNHARD GUSTAFSON.

Witnesses:

KNUT WM. G. BAGGE,
EDWARD A. WIESSNER.